PHOTOMIX PHOTOTYPESETTER
SERIES 8400
OPERATING INSTRUCTIONS

SINGER
GRAPHIC SYSTEMS

PHOTOMIX PHOTOTYPESETTER SERIES 8400 OPERATING INSTRUCTIONS

November, 1973
Revised January, 1975

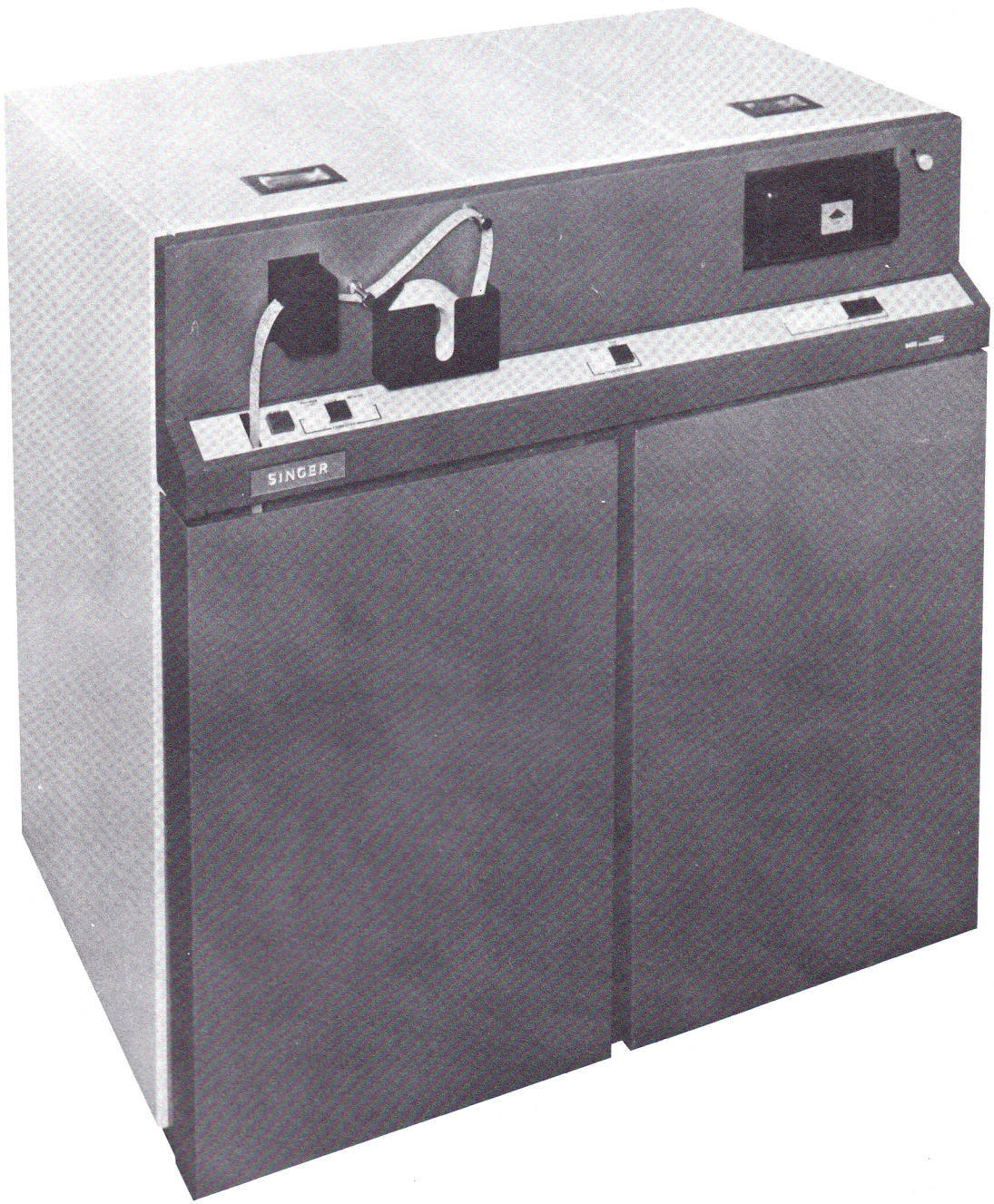
Price per manual: $30.48

SINGER
GRAPHIC SYSTEMS

151 Callan Avenue • San Leandro • California • 94577

Copyright © 1975, The Singer Company.
All rights reserved throughout the world.

All copy set on automatic phototypesetting products by Singer. Printed in U.S.A. 30-2017A



S00100M

TABLE OF CONTENTS

	Page
Introduction	xi
1 Description	1
Paper Tape Reader	2
Font Drum Assembly	2
Lens Turret and Optic Bundle	2
Paper/Film Transport Mechanism	5
Power Supply Unit	5
Control Panel	5
Power Switch	8
Computer Control Switches	8
Program Load Switch	8
Stop Switch	9
Initialize Switch	9
Typesetter Control Switches	9
Start Switch	9
Stop EOL Switch	10
Paper/Film Control Switches & Indicators	10
Lead Switch	10
Paper Indicator	11
Film Indicator	11
Full Indicator	11
Empty Indicator	11
2 Operating the Phototypesetter	13
Power Requirements	13
Computer Start-Up Procedure	13
Daily Start-Up Procedure	15
Daily Power-Down Procedure	15
Installing Font Segments	16
Loading Photo Paper or Film	17
Receiving Cassette Removal and Replacement	19
Loading Permanent Dictionary	21
Loading Font Width Tapes	21
Loading Format Statements	22
Running Text Tapes	23
Flash Density Adjustment	23
3 Font Configuration, Code Structures, Single Key Functions and Commands	25
Paper Tape Channel Numbering	26
Paper Tape Perforators	26
Type Font Configurations	26
Wire Service Fonts	26
News Display Fonts	26
Book Fonts	33

Single Key Functions and Commands 33
Single Key Functions (Table 7) 33
Supershift / Unsupershift 34
En Space / Em Space 34
Thin Space / Figure Space 34
Shift, Shift Lock, Unshift 34
Space Bar 34
Rubout 34
Single Key Commands (Table 8) 35

4 Font Width Tapes 37
Font Width Tape Code Sequence 39
Making a New Font Width Tape 40
Making a Modified Font Width Tape 40

5 Command Language 43
Typesetter Control Commands 43
Change Column Width 43
Change Face 46
Change Point Size 46
Change Leading 46
Zero Leading 47
Increment Automatic Leading 47
Kill Change Leading 47
Extra Leading 48
Reverse Leading 48
Hyphenation and Justification Commands 48
Change Interword Spacing 48
Use of Interword Spacing in Justification 49
Allow Letterspacing 49
Cancel Letterspacing 49
Allow Hyphenation 49
Cancel Hyphenation 50
Discretionary Hyphenation 50
Ragged Left 50
Ragged Right 50
Ragged Center 51
Cancel Ragged Margin 51
End of Line Commands 51
Quad Left, Quad Right, Quad Center 51
Non-Tab Mode 51
Tab Mode 52
Justify Line 52
Tabbing Commands 52
Tab Set 52
Special Tabbing Considerations 53
Tab Number 53
Example Command 53
Tab Proportion 54
Example Command 54
Tab Text 54

Mark Beginning Tab 55
Quit Tab Line 55
Cancel Tabs 56
Vertical Control Commands 56
Point Mark 56
Non-Tab Mode 56
Tab Mode 56
Return Mark 57
Point Maximum 57
Return Maximum 58
Indent Commands 58
Indent Take 58
Example: Left and Right Indentions 58
Example: Left Indention Only 58
Example: Right Indention Only 58
Indent First Line 59
Indent Hang 59
Indent Paragraph 59
Indent Text 60
Cancel Indent Hang 60
Indent Left Margin 60
Example: One Pair of Line/Indention Values 60
Example: Two or More Pairs of Line/Indention Values 61
Indent Right Margin 61
Skew Left 61
Skew Right 62
End-of-Paragraph 63
Paragraph Initialization 63
Indent Termination 63
Format Commands 63
Store Format 63
Use Format 64
End Format 64
Merge Copy 64
Delay Lines 65
Miscellaneous Commands 65
End-of-Take 65
Quad From Middle 65
With Leaders 66
With Character 66
Change Set Width 66
Example Command 66
Kern Character 67
No Escapement 67
No Flash 67
Cancel No Flash 67
Enter Temporary Dictionary 67
Enter Permanent Dictionary 68
Delete Word from Permanent Dictionary 68
Clear Permanent Dictionary 68
Kill Word 69
Enter Standard 177
Format Storage 193
ERROR MESSAGES 69

6 Application and Combined Use of Commands in Keyboarding 71
Typesetter Control Commands 71
Initial Specifications 71
Example: Specification Commands Both in Series and as Single Commands 72
Example: Initial Specifications at the Beginning of a Take 72
Change Column Width 73
Example: Changing Measure Within a Take 73
Change Face 73
Example: Changing Fonts Within a Take 73
Change Point Size 73
Example: Changing Type Size Within a Take 73
Change Leading 74
Example: Changing Leading Within a Take 74
Special Leading Commands 75
Zero Leading 75
Example: Use of Zero Leading to Facilitate the Use of Multiple Quadding Commands in the Same Line 75
Increment Automatic Leading 75
Example: Use of Increment Automatic Leading in a Take 75
Kill Change Leading 76
Example: Changing from Stored Leading to Automatic Leading in the Middle of a Take 76
Extra Leading 76
Example: Extra Leading Within a Take 76
Reverse Leading 76
Example: Use of Reverse Leading to Set Several Words Opposite a Justified Column 76
Hyphenation and Justification Commands 77
Interword Spacing 77
Example: Changing Interword Spacing for a Take 77
Letterspacing Commands 77
Example: Canceling and Restoring Letterspacing 77
Hyphenation Commands 78
Allow & Cancel Hyphenation 78
Example: Canceling and Restoring Hyphenation 78
Discretionary Hyphenation 78
Example: Discretionary Hyphen Used to Indicate Hyphen Points 78
Ragged Copy Commands 78
Ragged Left, Ragged Right, Ragged Center 78
Example: Ragged Copy With and Without Hyphenation 78
End-of-Line Commands 80
Quad Left 80
Example: Use of Quad Left to End a Line 80
Example: Use of Quad Left to End a Paragraph 80
Quad Right 80
Example: Use of Quad Right to End a Line 80
Quad Center 80
Example: Use of Quad Center to End a Line 80
Example: Use of Quad Center to End a Paragraph 80

Justify Line 81
Example: Force Justifying a Line 81
Tabbing Commands 81
Tab Setting Commands 81
Tab Set 81
Example: Tab Set Used to Set a Balance Sheet 81
Calculating the Length of an Underscore, Beneath Specific Characters 84
Tab Number 84
Example: Tab Number Used to Set an Income Summary 84
Tab Proportion 89
Example: Tab Proportion Used to Set a Helicopter Schedule 89
Tab Text 91
Example: Tab Text Used to Set Columns on a Quadded Line 91
Example: Tab Text Used to Set Columns on a Force Justified Line 93
Miscellaneous Tabbing Commands 94
Mark Beginning Tab 94
Quit Tab Line 94
Cancel Tabs 94
Vertical Control Commands 95
Point Mark / Return Mark 95
Example 1: Point Mark and Return Mark Used With Left and Right Indents to Set Two Parallel Columns 95
Example 2: Use of Point Mark and Return Mark With Tabs to Set Two Parallel Columns 95
Point Maximum / Return Maximum 96
Example: Point Maximum and Return Maximum Used to Return to the Bottom of a Column 96
Indent Commands 97
Indent Take 97
Indent First Line 98
Example: Use of Indent First Line as a Paragraph Indent 98
Indent Hang 98
Example: Indent Hang With and Without Full First Line 98
Indent Paragraph 100
Example: Indent Paragraph Within Full-Measure Text 100
Indent Text 100
Example: Text Indented the Value of a Word 100
Cancel Indent Hang 101
Indent Left Margin 101
Example: Indent Left Margin Used for a Runaround 101
Indent Right Margin 102
Example: Indent Right Margin with Multiple Pairs of Lines/Indention Values 102
Skew Left 103
Example: Negative Skew Left 103
Example: Positive Skew Left 104
Skew Right 105
Example: Negative Skew Right 105
Example: Positive Skew Right 106

End-of-Paragraph 106
Miscellaneous Commands 107
End-of-Take 107
Quad From Middle 107
With Leaders 107
With Character 107
Change Set Width 107
Example: Increasing Set Width for Special Effect 107
Kern Character 108
Example: The Classic Example of Kerning...AWAY 108
Example: Kerning a Fixed Space 108
No Escapement 109
Example: Flashing a Character a Number of Times to Make It Bolder 109
Example: No Escaping a Baseline Rule Segment at the Beginning of a Line 109
No Flash 110
Cancel No Flash 110

7 Format Statements 111
Format Commands 111
Store Format 111
End Format 111
Use Format 111
Merge Copy 111
Delay Lines 111
Capacity of the Format Table 112
Format Size 112
Format Overlay and Clearing the Format Table 112
Merging Between the Format and the Text Stream 113
Looping and Stringing Formats 113
Format Examples 114
Example Format Used in This Manual 114
Outline Formats 116
Check Imprint 122
Payroll Check Stub with Intermixable Formats 126
Racing Form 141
Sphering — Fitting Type to Shapes 146
Page Formatting and Pagination 150
Using a Pagination Format with Layout Variations Commanded on the Text Tape 160
Various Types of Pagination Formats 166
Magazine Page Format (With 3-Column Runaround) 168
Controlling the Degree of a Skew With a Format 170

8 Permanent & Temporary Exception Dictionaries 173
Hyphenation Rules 173
Permanent Dictionary 174
Use of Period in Ddictionary Entries 174a
Deleting Single Words from the Permanent Dictionary 175
Clearing the Permanent Dictionary 175
Obtaining a Dictionary Print-Out 175

Permanent Dictionary Load Tape 175
Tips for Creating and Maintaining the Permanent Dictionary 175
Temporary Dictionary 176
9 The Installation Standard 177
Changing the Installation Standard 177
Permanently Changing Interword Spacing 178
10 Cleaning and Maintenance 179
Font Drum Compartment 179
Film Transport Compartment 179
Cutting Knife 179
Receiving Cassette 179
Paper Tape Reader 179
Cooling Blower Filter 180
Font Segments 180
Appendix A — Fixed Space Values
(The Conversion of Points to Units) 183
Appendix B — Punching Visual Codes in a Tape 187
Appendix C — Setting Fractions
on the Photomix Phototypesetter, Series 8400 189
Method 1: Both Dividend and Divisor Set in Text Point Size
With Superior Numbers, Extra Lead Executed to Set Divisor 189
Method 2: Dividend in Text Point Size, Point Size Changed for Divisor 189
Method 3: Using Mathematical/Technical Font No. 2 190
Method 4: Using Script No. 1 Font 190
Appendix D — The Format Storage Command 193
Appendix E — The Looping and Stringing of Stored Formats 195
Looping Formats 195
Continuously Looping Formats 195
Conditionally Looping Formats 195
Stringing Formats 197
Continuously Stringing Formats 198
Conditionally Stringing Formats 199
Appendix F — Indenting and The Tab Mode 201
Indent Take with Tab Set 201
Indent Take with Tab Number 203
Indent Take with Tab Proportion 204
Indent Take with Tab Text 205
Indent First Line and Indent Hang
with all Tab-Setting Commands 206
Indent Paragraph with all Tab-Setting Commands 206
Indent Text with Tab Set 207
Indent Text with Tab Number, Tab Proportion & Tab Text 207
Indent Left Margin, Indent Right Margin,
Skew Left, Skew Right within Tabular Columns 208
Appendix G — Computation of Character Counts
for Singer Photomix Fonts 209
Appendix H — Terminators for Lines Containing
the With Leaders or With Character Commands 213
Appendix I — Floating Accents 215
Index 217

LIST OF ILLUSTRATIONS

		Page
1.	Major Assembly Locations	xiv
1A.	Photounit Assembly (Top View)	1
2.	Paper Tape Reader	2
3.	Font Drum Assembly	3
4.	Lens Turret and Optic Bundle Assembly	4
5.	Photounit Pictorial Schematic	5
6.	Paper/Film Transport Mechanism (Transport Cover Removed)	6
7.	Power Supply Unit	7
8.	Control Panel	7
9.	Computer Control Switches	8
10.	Typesetter Control Switches	9
11.	Paper/Film Control Switches and Indicators	10
12.	Computer Panel	14
13.	Mounting a Font Segment	16
14.	Tightening the Thumbscrews	17
15.	Removal of Transport Cover Plate	18
16.	Placement of Paper or Film Box in Holding Compartment	18
17.	Placement of Spacer Bar and Guiding of Paper Across Baseplate to Cassette	19
18.	Marking Exposed Photo Paper	20
19.	Cutting Off Exposed Photo Paper	20
20.	Replacement of the Cassette	21
21.	Flash Density Adjustment	23
22.	Tape Identification	25
23.	Cooling Blower Filter	180

LIST OF TABLES

		Page
1.	Character Codes in Numerical Sequence	27
2.	Alphabet Codes	28
3.	Wire Service Symbol Codes	29
4.	News Display Symbol Codes	30
5.	Book Symbol Codes	31
6.	Pi Characters	32
7.	Single Key Functions	33
8.	Single Key Commands	35
9.	Font Width Codes	38
10.	Font Position Address Codes	39
11.	Command Structures	44
12.	Conversion of Points to Units	185

INTRODUCTION

This manual is designed to provide the copy mark-up editor and the operator of the Photomix phototypesetter, Series 8400, with as much background as possible, enabling them to perform any typesetting task with ease.

To this end, it is extremely important that, before use of the machine is attempted, this manual be read carefully from beginning to end, with the exception of certain specific applications in Section 7 which may not immediately interest the reader.

Further, it is essential for the operator to begin thinking in the Command Language used with this phototypesetter. It will be found that this language is extremely easy to learn since it utilizes familiar English language abbreviations.

Once the operator has a thorough grasp of the uses of commands and the relationships between them, operation of the typesetter will come quite easily.

The sections of the manual proceed as follows:

Section 1 will familiarize the operator with the hardware of the typesetter, including all switches and indicators used in the operation of the machine.

Section 2 covers the actual operation of the phototypesetter, including all the operator needs to know to achieve final output copy from previously prepared paper tapes.

Section 3 contains a number of tables and covers the various font configurations used on the typesetter, all code structures used and valuable information on the use of single-key functions and commands.

Section 4 tells how the widths of all characters are specified on the width tapes, and how certain widths may be altered for special purposes.

Section 5 is perhaps the most important single body of information in this manual. It outlines what every command does, together with the relationships between commands and how their functions change under various circumstances. Table 11, *Command Structures*, may be used for constant reference in the study of later sections because it shows sample commands and the page on which the first example of the use of each command may be found.

Section 6 directly parallels Section 5 in giving detailed examples of the use of each command, with the exception of commands used in connection with Format Statements, the Dictionaries and the Installation Standard, examples of which appear in later sections.

Section 7 covers in detail the writing and use of stored Format Statements.

Section 8 outlines the use of commands relating to the Permanent and Temporary Exception Dictionaries, how words are stored and the use and maintenance of the dictionaries.

Section 9 explains the Installation Standard and how it may be used to advantage by the operator.

Section 10 sets forth important cleaning and maintenance procedures which will enable the user to achieve a consistently high level of performance from the phototypesetter.

Appendix A contains instructions on how to set fixed spaces of any number of picas or points in any of the fifteen point sizes.

Appendix B demonstrates the coding necessary to produce "visuals" (visual identification) in a paper tape.

Appendix C describes recommended methods for setting fractions.

Appendix D explains in detail the use and effect of the Format Storage command — ⟨FSxxxx⟩ — in altering the respective sizes of the storage areas allotted to Format Storage and the Permanent Dictionary.

Appendix E discusses the stringing and looping of Stored Formats, and illustrates these practices with simple diagrams. Also covered are situations where the operator may control looping and stringing with one keystroke, and may also indicate the number of times a stored format is to be executed.

Appendix F explains how the various indents may be used with the Tab Mode, and the effects of indenting on the tab setting commands.

Appendix G contains the formula for the computation of Character Counts for Singer Photomix fonts, to aid the user in copy fitting.

Appendix H describes the effects of various terminators on lines containing the With Leaders or With Character commands.

Appendix I explains the use of floating accents for languages other than English.

RECOMMENDED SUPPLEMENTAL READING

The following text covers everything from the origins of the alphabet and units of measurement, to materials for the designer, copyfitting and page make-up:

Craig, James: *Designing with Type: A Basic Course in Typography*, Watson-Guptill Publications, a division of Billboard Publications, Inc., One Astor Plaza, New York, N.Y. 10036, 1971.

The novice to typography in general, and photocomposition in particular, will find much background information and a more thorough understanding of the terminology used in this manual, in the following publication:

Romano, Frank J.: *Automated Typesetting: The Basic Course*, GAMA Communications, division of Graphic Arts Marketing Associates, Salem, New Hampshire, 1974.

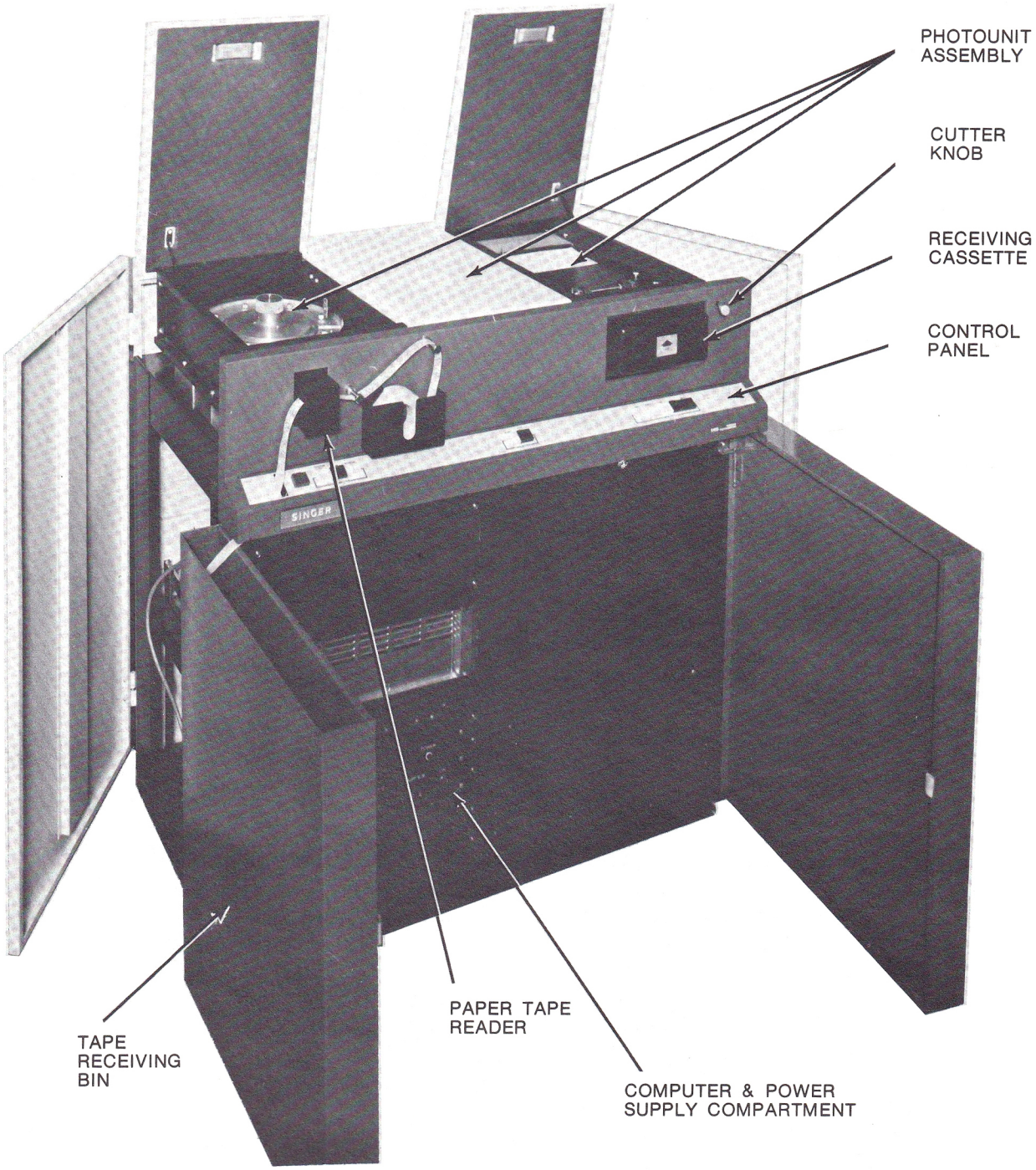


Figure 1. Major Assembly Locations.

SECTION 1

DESCRIPTION

The Photomix phototypesetter, Series 8400 is designed to produce automatically hyphenated and justified copy from unjustified or justified TTS-coded tape input. The machine operates completely unattended. All commands (functions) are encoded either in the input tape, or stored as Format Statements and accessed from the input tape.

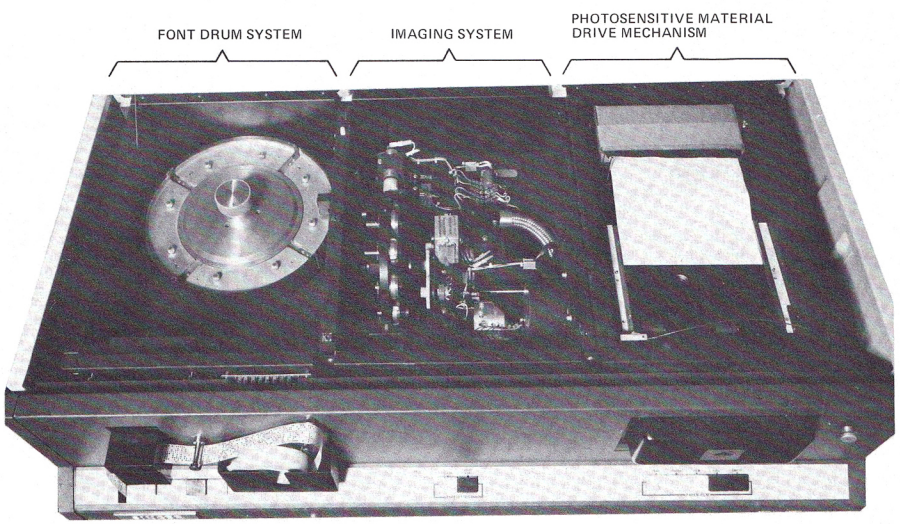
The standard input tape is 6-channel TTS-coded tape, 7/8″ wide or 1″ wide, with either advanced or in-line feed holes.

Output from the Photomix 8400 is in the form of right-reading photo paper or right-reading film positives.

The phototypesetter can set type in the following fifteen point sizes, on-line at all times: 6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 24, 28 and 36 point. The 8, 10, 11, 12, 14 and 18 point sizes are obtained by halving the 16, 20, 22, 24, 28 and 36 point sizes by means of a galilean telescope mounted at the output end of the fiber optic bundle (see Figure 5).

The 8400 Series basic 8K model incorporates a 1,900 character storage area (optionally expandable in increments of 8K) which may be used for Format and/or Dictionary storage. Pre-punched Format Statements, including commands and repetitive text, may be loaded, stored and later accessed in text input. Up to 250 formats may be stored at one time.

The basic components of the machine (Figure 1 and Figure 1A) are the paper tape reader, font drum assembly, lens turret and optic bundle assemblies, paper/film transport mechanism, power supply unit, computer and the control panel.



S0098M

Figure 1A. Photounit Assembly (Top View).

PAPER TAPE READER

The paper tape reader (Figure 2) is mounted on the left-hand front of the machine, and is the means by which all computer software programs, font widths, dictionaries, format statements, commands and text are read into the machine.

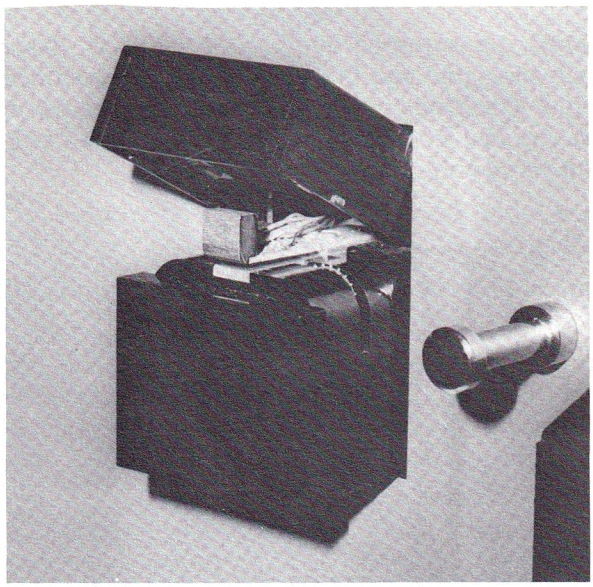


Figure 2. Paper Tape Reader.

FONT DRUM ASSEMBLY

The font drum assembly (Figure 3) is located under the cover at the top left side of the machine. The font drum holds four individual (simplexed) type font segments which can be mounted at any position on the drum and changed whenever necessary. Each font has its own timing marks and its own set of widths peculiar to its design.

LENS TURRET AND OPTIC BUNDLE

The lens turret and fiber optic bundle are located under the center top cover of the machine (Figure 4). A Xenon lamp within the font drum compartment flashes each time a character to be set passes in front of it (Figure 5). The resulting image travels through the selected lens in the lens turret where the character is enlarged to the size determined by the lens. This enlarged image travels through Image Enhancer Stage 1, then into the end of the fiber optic bundle leading to the paper/film transport area.

The other end of the fiber optic bundle is mounted on a carrier assembly which travels back and forth under a horizontal aperture in the paper/film transport assembly baseplate. When the enlarged character reaches this end of the bundle, it passes through Image Enhancer Stage 2 (and through a galilean telescope for some sizes), which projects and exposes the image onto the photo paper or film moving over the aperture in the baseplate. This entire optic assembly, for simplicity, will hereafter be referred to as the *lens*. The lens of the phototypesetter flashes (exposes) lines of type in both directions of travel—from left to right, then from right to left.

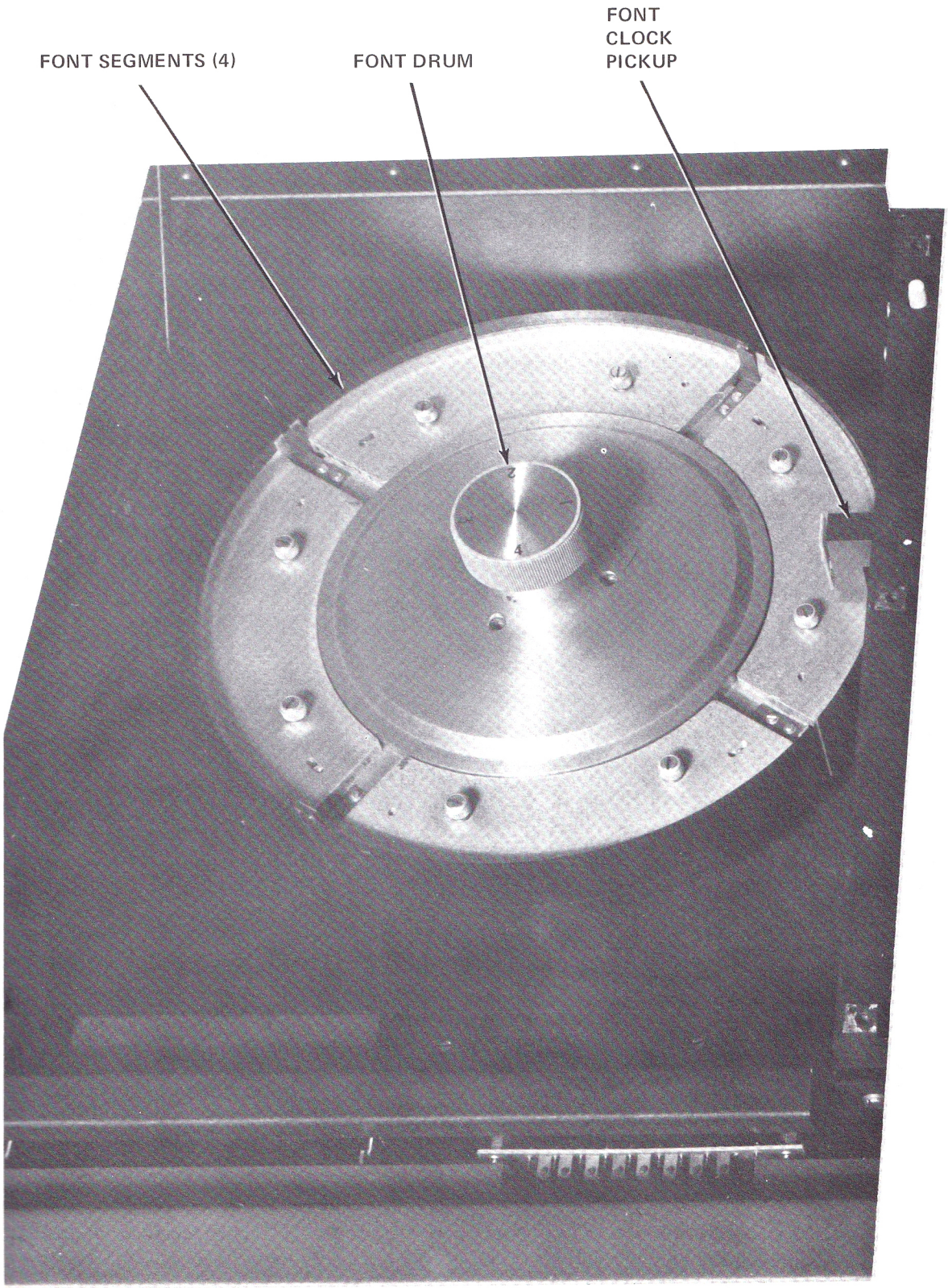


Figure 3. Font Drum Assembly.

Description

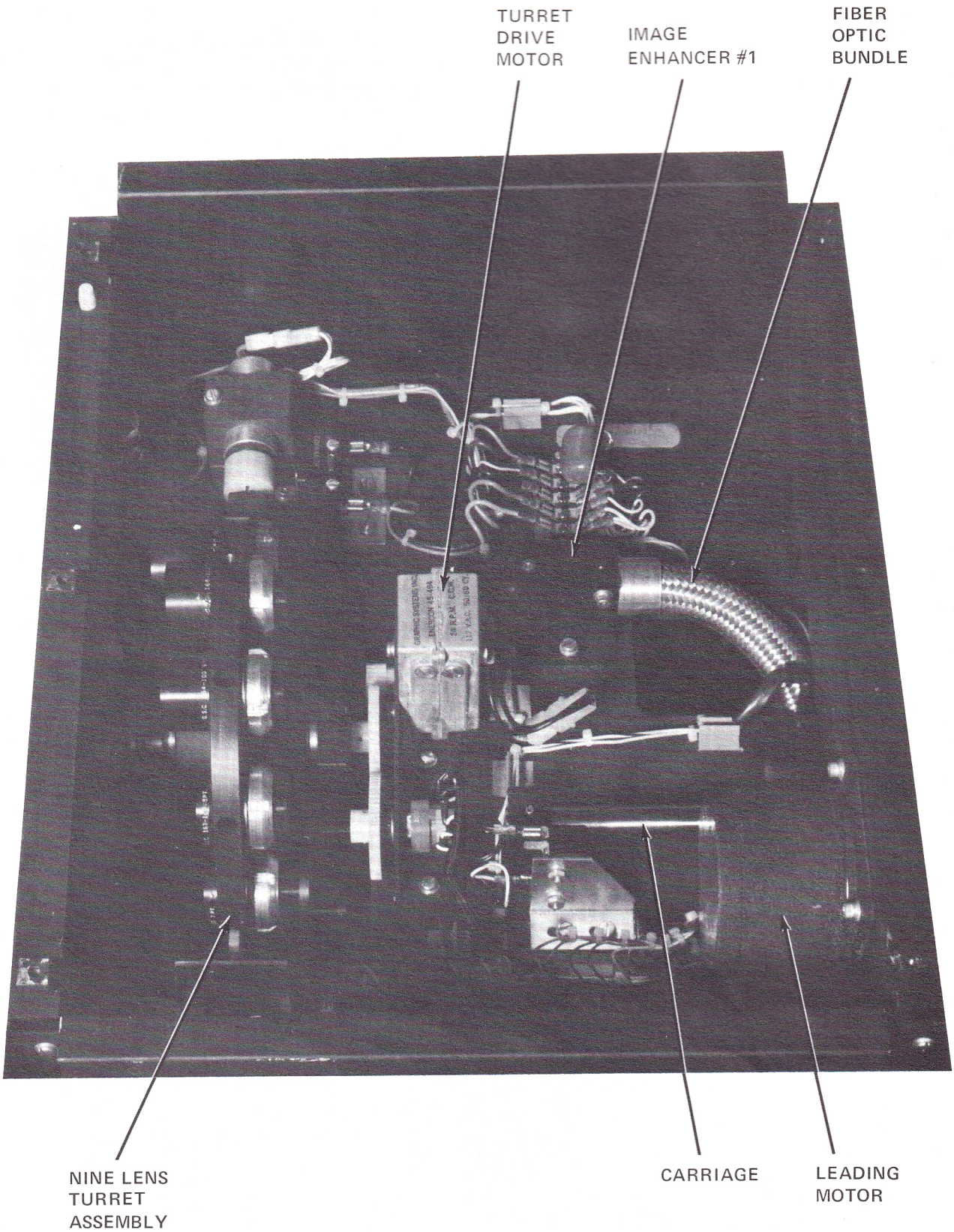


Figure 4. Lens Turret and Optic Bundle Assembly.

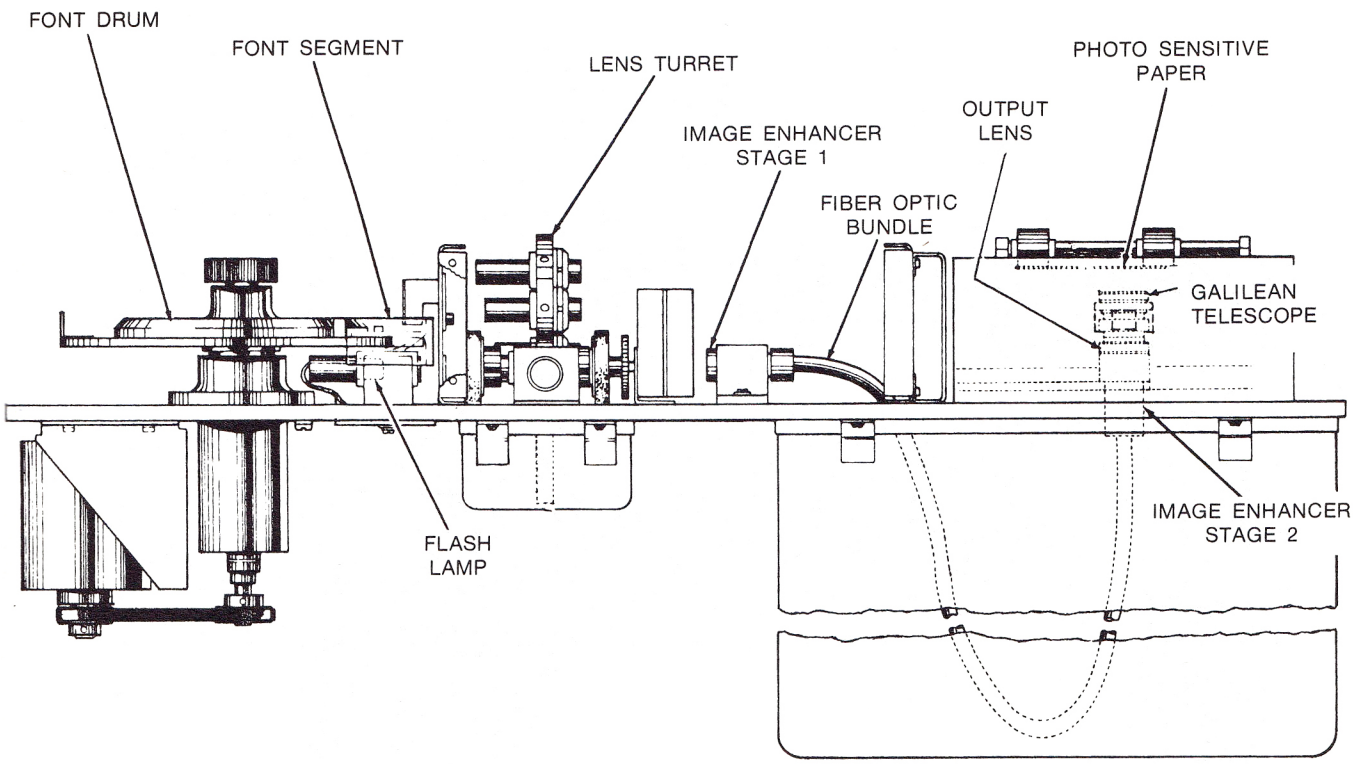


Figure 5. Photounit Pictorial Schematic.

PAPER/FILM TRANSPORT MECHANISM

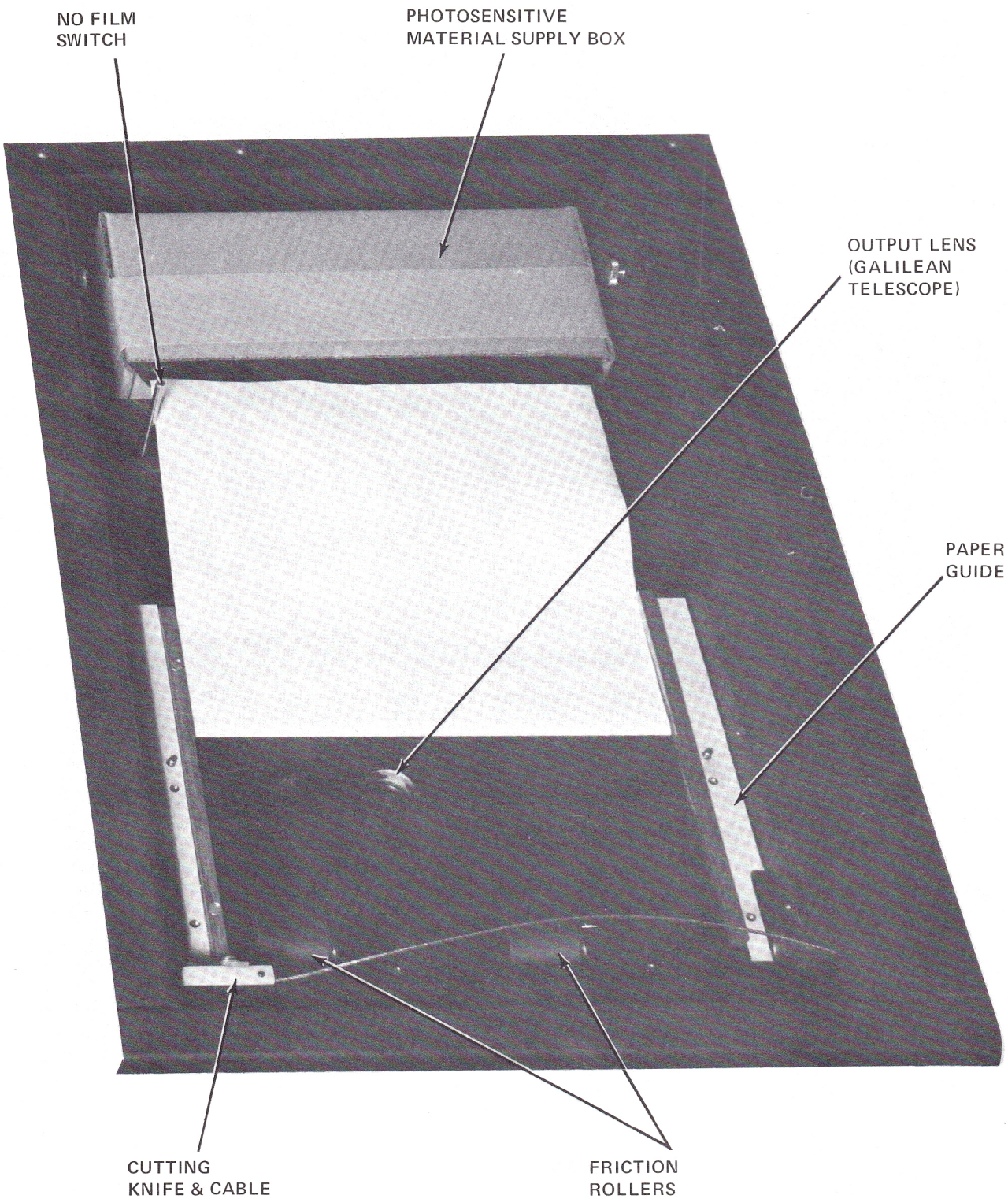
The paper/film transport mechanism (Figure 6), located at the right-hand top side of the phototypesetter, holds the photo paper or film and contains a motor drive assembly which advances or reverses the paper according to the leading either specified by the operator in the input tape or calculated by the computer (automatic leading). The leading motor advances the paper or film *before* each line is flashed, feeding the exposed paper into the receiving cassette on the front of the machine where it is stored. When the job is completed, the paper is cut, the cassette removed, and the photo paper or film developed to obtain the reproduction proof.

POWER SUPPLY UNIT

The power supply unit (Figure 7) is located at the lower left front of the machine behind the door containing the tape receiving bin. The front panel contains the main power on/off toggle switch, fuses, a power indicator light, the flash density adjustment control knob and the paper/film switch.

CONTROL PANEL

The control panel (Figure 8) is located at the top front of the machine and contains, from left to right, three groups of switches and indicators in addition to the POWER switch: Computer Control Switches, Typesetter Control Switches and Paper/Film Control Switches and Indicators.



S00095M

Figure 6. Paper/Film Transport Mechanism (Transport Cover Removed).

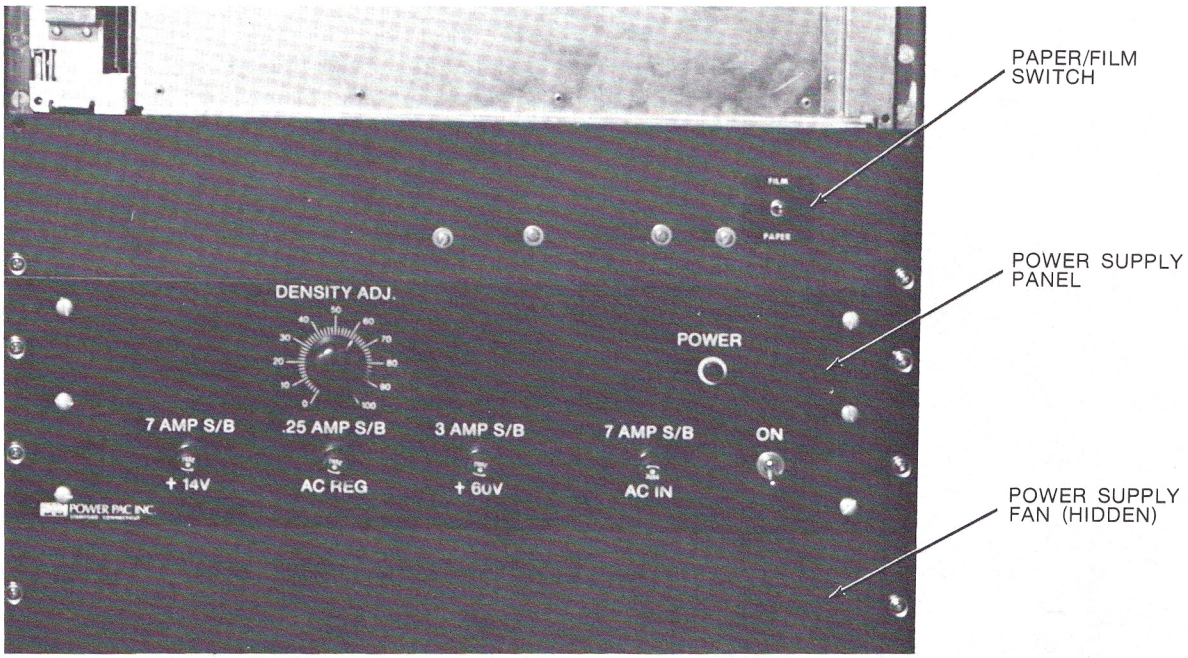


Figure 7. Power Supply Unit.

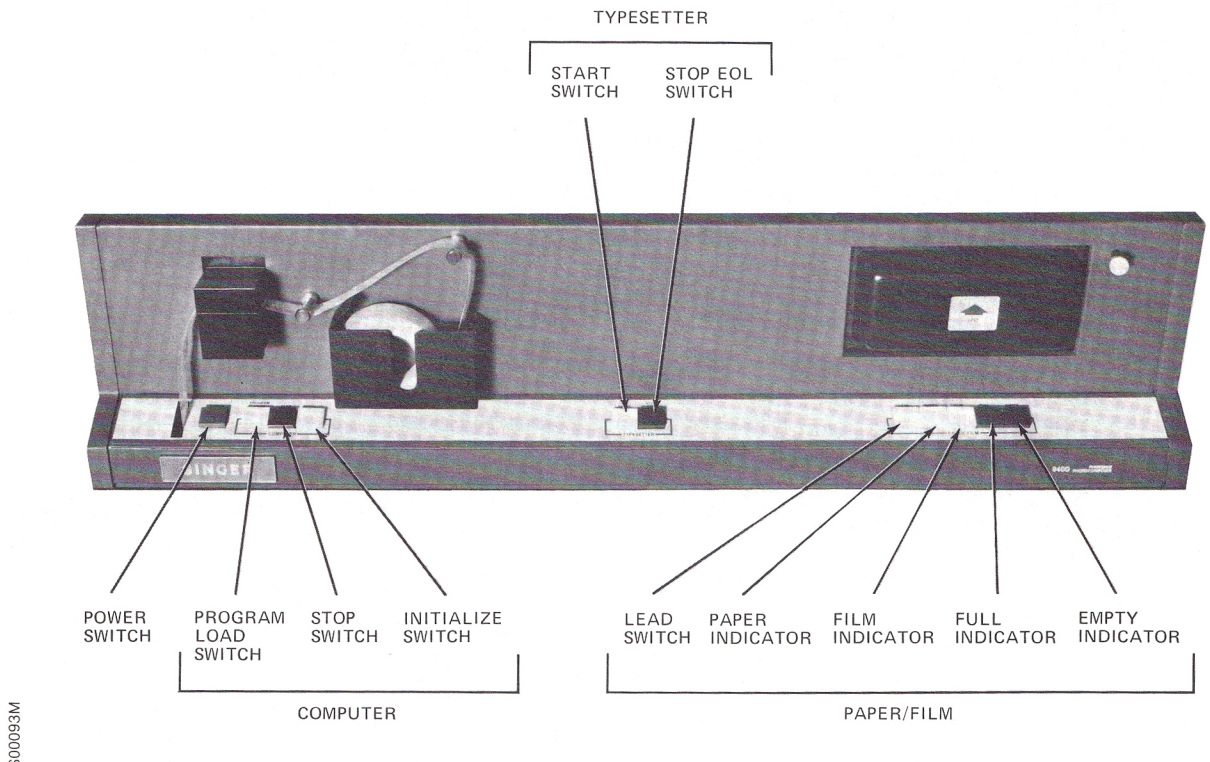


Figure 8. Control Panel.

POWER Switch

The green POWER switch is the button located at the extreme left end of the control panel. The button is illuminated when power is on. Depress the button once to turn the power on and once to turn the power off.

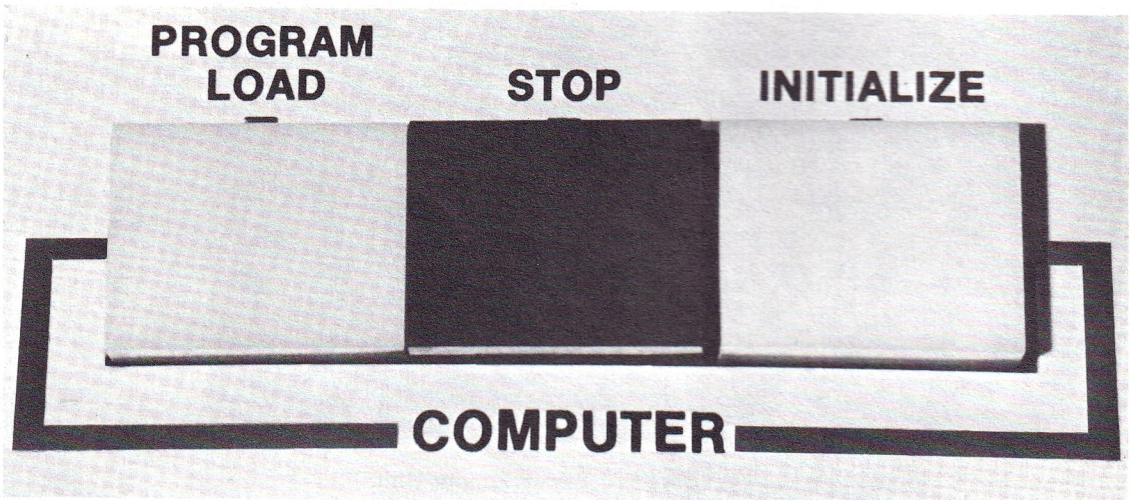


Figure 9. Computer Control Switches.

COMPUTER CONTROL SWITCHES

At the left of the control panel next to the POWER switch is a group of three switches labeled *COMPUTER* (Figure 9). They include PROGRAM LOAD, STOP and INITIALIZE.

PROGRAM LOAD Switch

The PROGRAM LOAD switch is a white button. It is pressed *only* to load the Software Program into computer memory. The PROGRAM LOAD switch is *not* to be used for loading format statements. If this switch is used to read any tape other than the Software Program Tape, the computer program may be lost from memory, as well as all font widths, stored formats and the dictionary.

The EMPTY indicator (in the group of buttons at the right end of the control panel grouped under PAPER/FILM) is also an operating switch. The PROGRAM LOAD and EMPTY switches must be pressed simultaneously to load the Software Program Tape. The PROGRAM LOAD switch *will not* operate independently of the EMPTY switch.

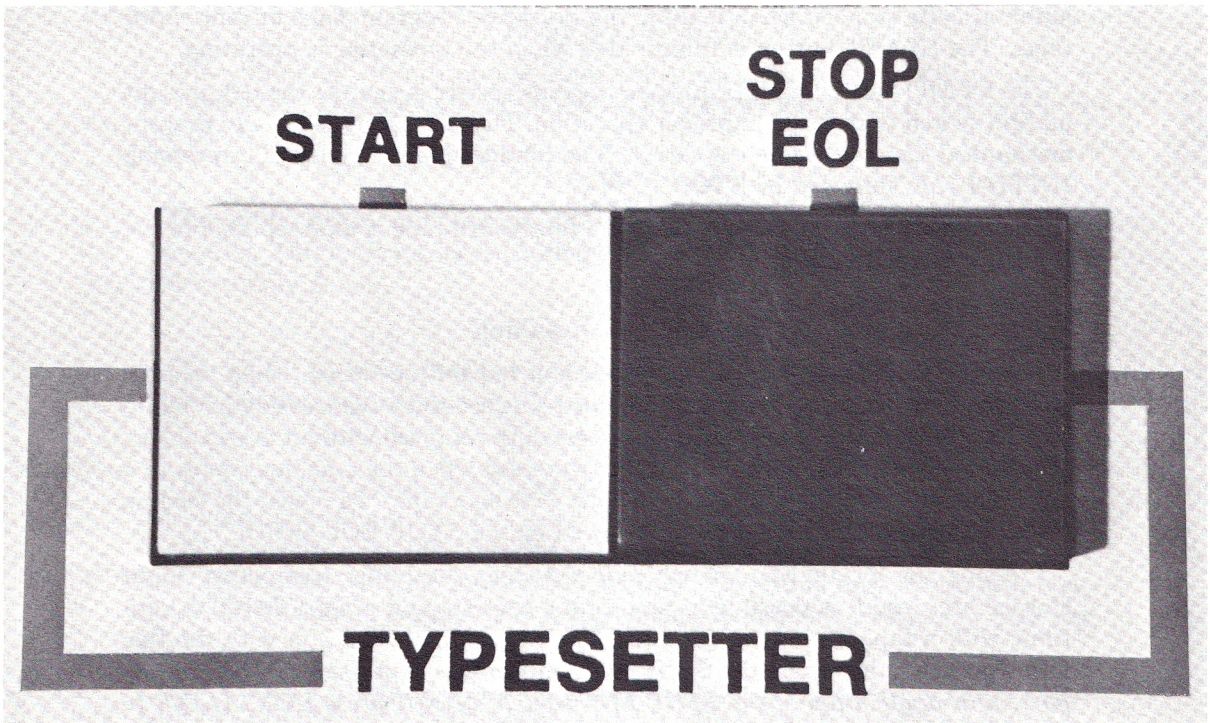


Figure 10. Typesetter Control Switches.

STOP Switch

The STOP switch is a red button which, when pressed, stops the paper tape reader and also stops the typesetter from performing any further action. When STOP is pressed, the lens carrier remains positioned at the point in the line where the stop action took place. Pressing this switch *does not* clear the buffer.

INITIALIZE Switch

The INITIALIZE switch is a white button used to *initialize* the input of data to the computer and/or to *initialize* action on the part of the typesetter. The INITIALIZE switch is pressed to begin the reading of any tape *other than the Software Program Tape.* When INITIALIZE is pressed, the following actions occur:

- The buffer (temporary input storage area) is cleared of any codes.
- The lens carrier returns to the left margin.
- All specifications will return to the Installation Standard (see Section 9).
- Width tape codes, if they follow, will be read into the Font 1 position.

TYPESETTER CONTROL SWITCHES

In the center of the control panel are two switches labeled *TYPESETTER* (Figure 10). They include START and STOP EOL.

START Switch

The START switch is a white button which, when pressed, *continues* the reading of a tape when it has been previously stopped by the STOP button or

automatically stopped when loading the Software Program Tape or font width tapes. The START button is illuminated when the typesetter is operating.

The START button will flash when the lens carrier is against the left or right margin switch to indicate improper operation. This is a safety feature to prevent mechanical damage to the lens carrier. The condition may be cleared by pressing INITIALIZE, followed by STOP.

The START button will also flash if a font width tape is unacceptable to the computer during loading.

STOP EOL Switch

The STOP EOL (End of Line) switch is a red button which, when pressed, stops the lens carrier at the end of the line being set and advances enough photo paper or film to allow the receiving cassette to be removed without overexposing the copy just set. This button is normally pressed when the machine comes to a stop at an End-of-Take command (the last code on a tape). To repeat the feeding process, press the START switch, followed by the STOP EOL switch.

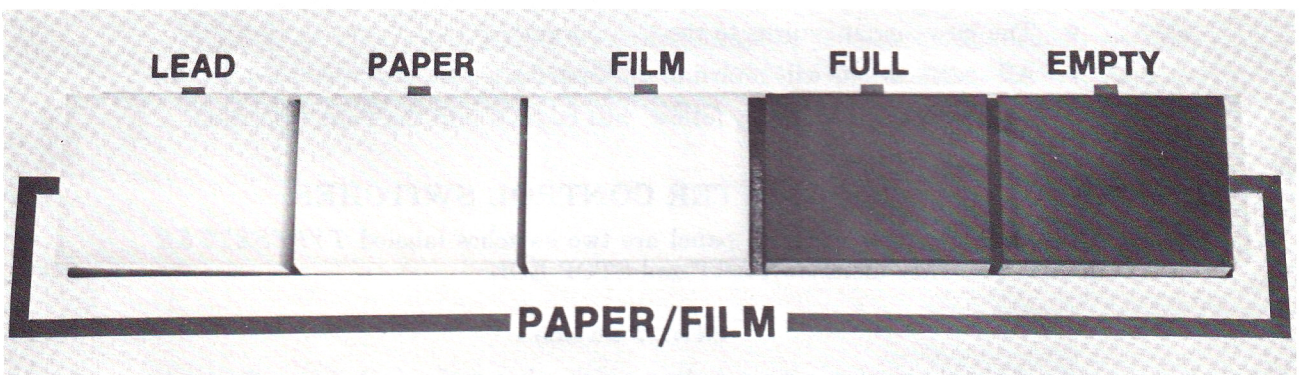
Pressing the STOP EOL switch *will not* clear the buffer (temporary input storage area), so it is possible to replace the cassette and press START to continue with a tape already in progress. The new galley will begin with the line following the point where the STOP EOL button was depressed. *NOTE: In this particular application of the STOP EOL switch, DO NOT press INITIALIZE to proceed with the tape, as this WILL clear the buffer.*

PAPER/FILM CONTROL SWITCHES & INDICATORS

At the right end of the control panel is a group of five switches and indicators labeled *PAPER/FILM* (Figure 11). They include LEAD, PAPER, FILM, FULL and EMPTY.

LEAD Switch

The LEAD switch is a white button which will continue to advance photo paper/film as long as it is pressed, at the rate of slightly more than one inch per second.



S00090M

Figure 11. Paper/Film Control Switches and Indicators.

PAPER Indicator

The white PAPER indicator is illuminated when photo paper is being used in the typesetter. This indicator is controlled by the PAPER/FILM toggle switch on the power supply panel.

FILM Indicator

The white FILM indicator is illuminated when film is being used in the typesetter. This indicator is controlled by the PAPER/FILM toggle switch on the power supply panel.

FULL Indicator

The red FULL indicator light comes on when the take-up cassette is full. The typesetting function automatically stops.

EMPTY Indicator

The red EMPTY indicator comes on and the typesetter ceases operation when the photo paper/film supply box is empty and there is 8″ of paper/film remaining in the transport area. The typesetting function stops at the end of the current line. The buffer remains undisturbed, so that typesetting in progress may continue once the photo paper or film is replenished. Resume typesetting by pressing the START switch.

The EMPTY indicator is also an operating switch, to be used in conjunction with the PROGRAM LOAD switch in the loading of Software Program Tapes.

SECTION 2
OPERATING
THE PHOTOTYPESETTER

POWER REQUIREMENTS

Voltage — 115V AC ±10% , 60 Hz, single phase.

The phototypesetter MUST be connected to a simplexed grounded outlet that supplies the required current. Only one typesetter unit may be connected to a single 20-ampere circuit. The power line must be independent of any other load. The power cord supplied with the phototypesetter is equipped with a ground pin for the receptacle ground. The power circuit must have an insulated wire conductor equal to or larger than the size of the current carrying conductors to ground the machine; however, the ground wire size should conform to local or National Fire Protection electrical codes. The ground wire can be connected to a main ground wire (not a system neutral), and this wire must be carried directly back to the service ground to a suitable building ground. Conduit or Bx sheathing is not acceptable as a ground.

As with most computers, the phototypesetter requires a static-free environment, and *should not be installed on a carpet.* If the area where the machine is to be installed is already carpeted, there are three possible solutions: (1) *remove carpet* and install "Armstrong" Data Tile or equivalent in the machine area; (2) *install static-mats* (these may be discussed with your Singer Field Engineer); or, (3) *spray carpet* twice weekly with a solution of one part fabric softener to two parts water.

Three separate procedures will be discussed below: (1) Computer Start-Up Procedure; (2) Daily Start-Up Procedure; and (3) Daily Power-Down Procedure. The basic steps of each procedure will be itemized. Some will be discussed totally under that particular step; other steps which incorporate definite procedures of their own are discussed under individual subheadings later in this section.

COMPUTER START-UP PROCEDURE

This procedure should be followed: (a) when the phototypesetter is being powered up for the first time following delivery; (b) following service on the machine which affects the computer; or (c) if for any reason the Computer Program has been lost.

Follow these steps to begin operation of the typesetter.

1. Make sure the power cord is plugged into a dedicated line (see *Power Requirements*, above).
2. Make sure the power supply switch is in the ON position (it need never be turned off by the operator). This is a toggle switch located on the power supply panel on the lower left-hand front side of the machine behind the door (Figure 7).
3. Make sure the computer key is in the ON-LOCK position, turned clockwise 180°. The computer key fits the keyhole on the left side of the computer panel (Figure 12) directly over the power supply panel on the lower left-hand front side of the machine. The key may now be removed and stored in a safe place. Under normal operating conditions, the computer will never

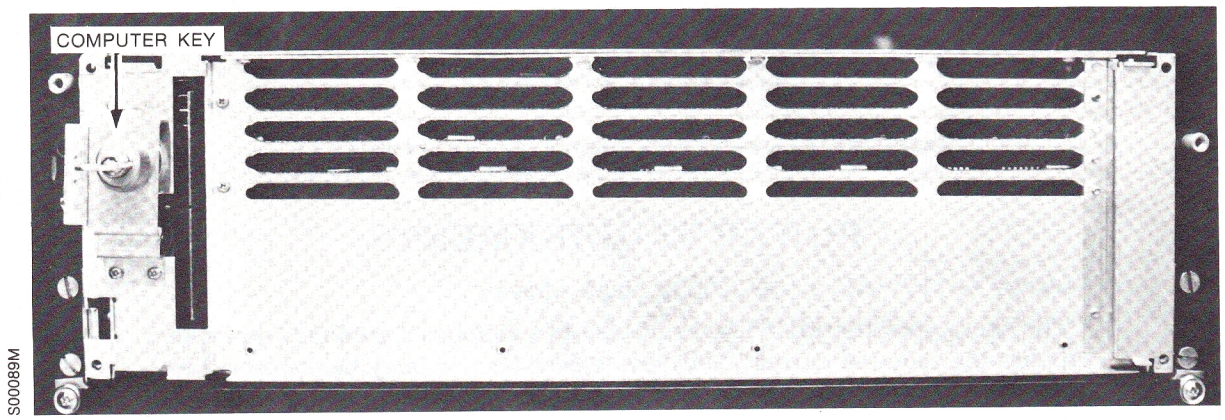


Figure 12. Computer Panel.

have to be turned off again. Hereafter, all power will be controlled by the POWER switch on the front control panel.

4. Make sure all four font segments are mounted (see *Installing Font Segments*, page 16).
5. Press the POWER switch. Power will be supplied to the typesetter and the font drum will begin revolving.
6. Put the Computer Program Tape into the reader, past any visuals (code combinations punched to form alphanumerics for purposes of identification) at the beginning of the tape.
7. Press PROGRAM LOAD. (Simultaneously press the EMPTY switch to the right of the control panel.) The *Bootstrap* will be read into the computer. This is a segment of basic information which instructs the computer as to what kind of data it is to receive (the typesetting program) and how it is to store that data. The reader will stop at the end of the *Bootstrap*.
8. Press START to continue reading the typesetting program. DO NOT press PROGRAM LOAD again. The reader will stop at the end of the tape. Rewind the Computer Program Tape and store it in a safe place (with the computer key); this tape is essential to the operation of the phototypesetter.
9. (Optional) Load the Permanent Dictionary (see *Loading Permanent Dictionary*, page 21). There is a basic dictionary in the computer software, but if you have assembled a new Permanent Dictionary for your particular application, you may load it at this time. This dictionary may be changed in whole or in part at any time during the operating day.
10. Load Font Width Tapes (see *Loading Font Width Tapes*, page 21).
11. Load Format Statements to be stored (see *Loading Format Statements*, page 22).
12. Make sure photo paper or film of the desired size is loaded and that the PAPER/FILM toggle switch on the power supply panel is correctly set. The corresponding indicator on the control panel will be illuminated (see *Loading Photo Paper or Film*, page 17.)
13. Follow procedures under *Running Text Tapes*, page 23.

DAILY START-UP PROCEDURE

This procedure may be followed on a daily basis. When the phototypesetter is powered up, the following remains resident in the computer: (1) the Software Program, (2) the Installation Standard, (3) the Permanent Dictionary, (4) the Font Widths, and (5) stored Format Statements. With the exception of the Software Program, any of these may be changed at the beginning of, or at any time during, the operating day.

Follow these steps to begin operation at the beginning of the operating day:

1. Make sure all four font segments are mounted (see *Installing Font Segments*, page 16).
2. Press the POWER switch. Power will be supplied to the typesetter and the font drum will begin revolving.
3. (Optional) Load photo paper or film of the desired size and check to see that the PAPER/FILM toggle switch on the power supply panel is correctly set. The corresponding indicator (PAPER or FILM) on the control panel will be illuminated. This step may be skipped if no change needs to be made from the previous day (see *Loading Photo Paper or Film*, page 17).
4. (Optional) Load Permanent Dictionary if a change is desired from the last one in use (see *Loading Permanent Dictionary*, page 21).
5. (Optional) Load Font Width Tapes for any (or all) fonts which have been changed since the machine was last in use (see *Loading Font Width Tapes*, page 21).
6. (Optional) Load Format Statements to be stored if formats other than the ones last in use are desired (see *Loading Format Statements*, page 22).
7. After performing at least steps 1 and 2, go to procedures under *Running Text Tapes*, page 23.

DAILY POWER-DOWN PROCEDURE

At the end of the operating day, follow this procedure to power-down the phototypesetter:

1. (Optional, Suggested) Obtain a print-out of the Permanent Dictionary (see Section 5):

   SUPERSHIFT
   P
   D
   2
   UNSUPERSHIFT

   This is suggested so that if the Computer Program is lost (and along with it the dictionary) before the next use of the machine, a record of the current status of the dictionary is available — including all words that have been added or subtracted — enabling the operator to recreate the dictionary load tape if necessary.
2. Press the POWER switch.

INSTALLING FONT SEGMENTS

CAUTION

All four font segments must be mounted on the font drum before operating the machine. Severe damage will result if the font drum is not properly balanced. Aluminum and acrylic font segments may not be intermixed on the same machine.

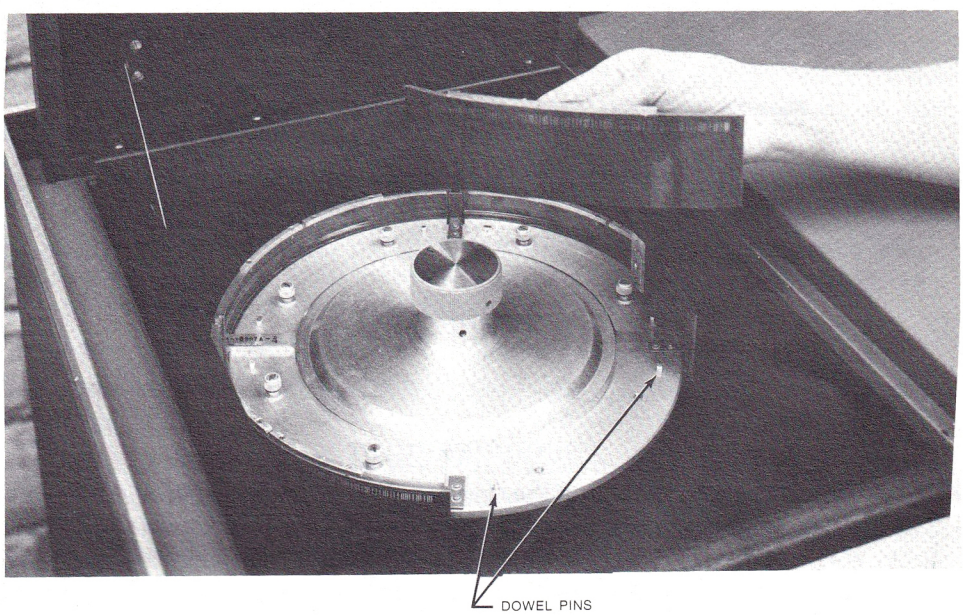
1. Raise the font drum cover and allow the drum to come to a complete stop.

WARNING

Do not attempt to stop the font drum by hand. Do not allow hair, ties or any clothing to come in contact with the spinning font drum. Severe personal injury can result if these precautions are not taken.

2. To remove a font segment, loosen the two thumbscrews securing it to the font drum and lift the font by these thumbscrews from the dowels on the drum, being careful not to bend the film part of an aluminum segment. Be careful not to get fingerprints on either the font characters or timing marks.

3. Make certain that any font to be mounted is dust free. (See page 180 for font cleaning instructions.) If dust is on the film matrix, broken characters may result.



S00048M

Figure 13. Mounting a Font Segment.

4. Mount the font segment at its selected position on the font drum. Align the left-hand (round) dowel pin hole in the font with the dowel pin on the font drum. Then align the right-hand (oblong) dowel pin hole with the other dowel pin on the font drum (Figure 13).
5. Press the font firmly into place, making sure that it is snug against the font drum and is not cocked or otherwise mispositioned.
6. Tighten the thumbscrews by pushing them down and turning them until they are finger-tight (Figure 14).
7. Load the other three font segments in the same manner.

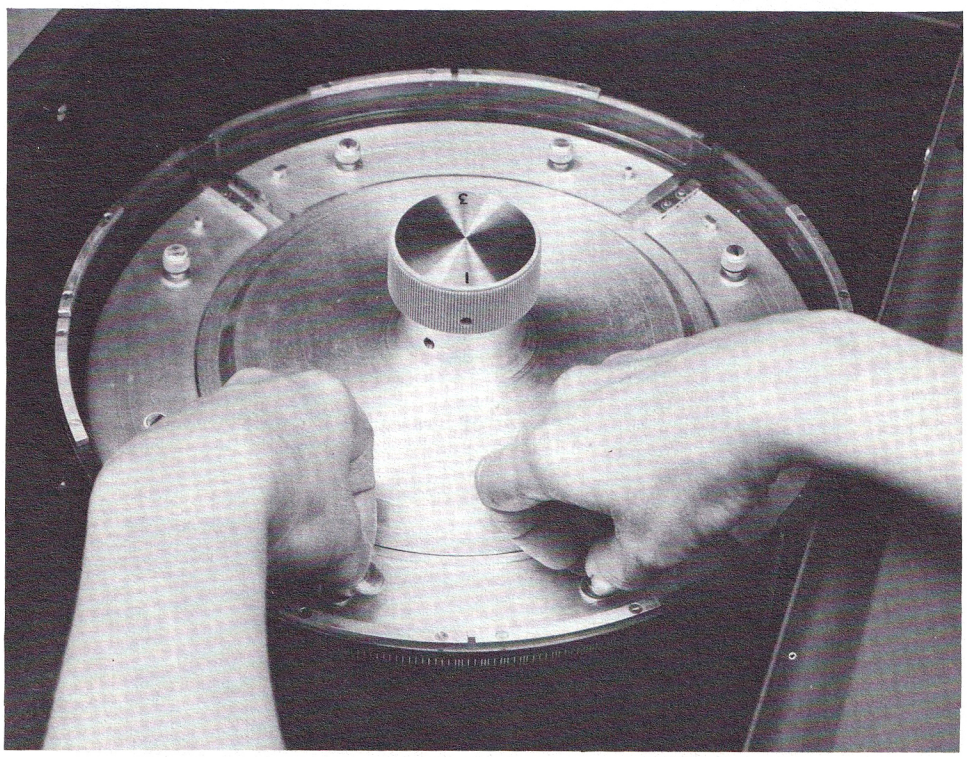


Figure 14. Tightening the Thumbscrews.

LOADING PHOTO PAPER OR FILM

1. Remove receiving cassette.
2. Raise paper transport lid.
3. Remove transport cover plate (four screws) (Figure 5).
4. Remove empty (or partially used) photo paper/film box and any photo paper or film in the transport area.
5. Place the film spacer bar in the proper slot in the transport bottom plate for the width of paper or film being used. There are slots for 2, 3, 4, 6 and 8 inch paper or film widths.
6. Place a new box of photo paper or film in rear holding compartment (Figure 16).

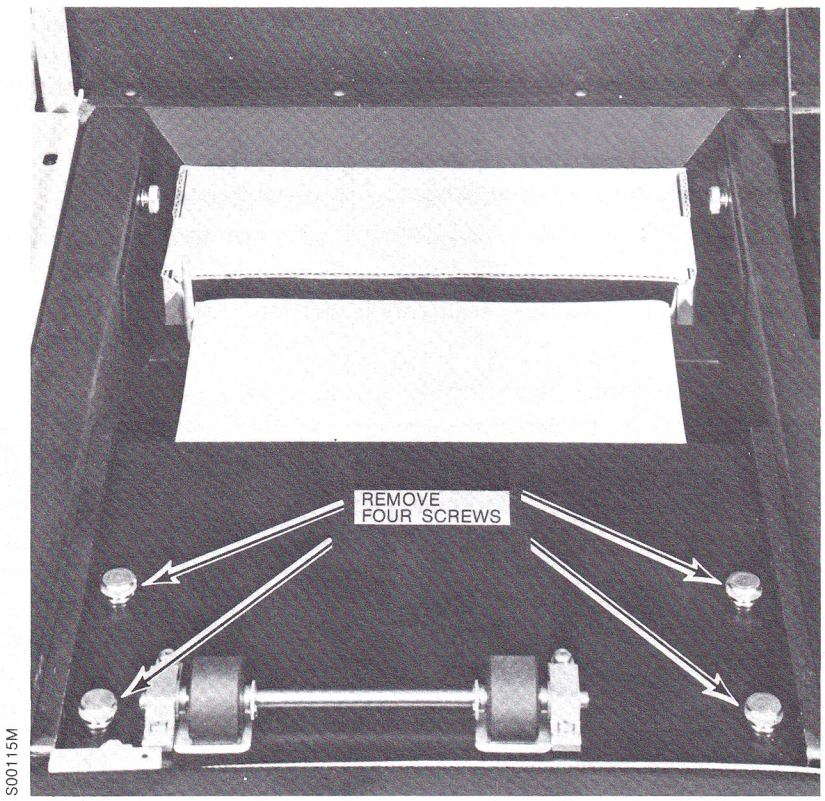


Figure 15. Removal of Transport Cover Plate.

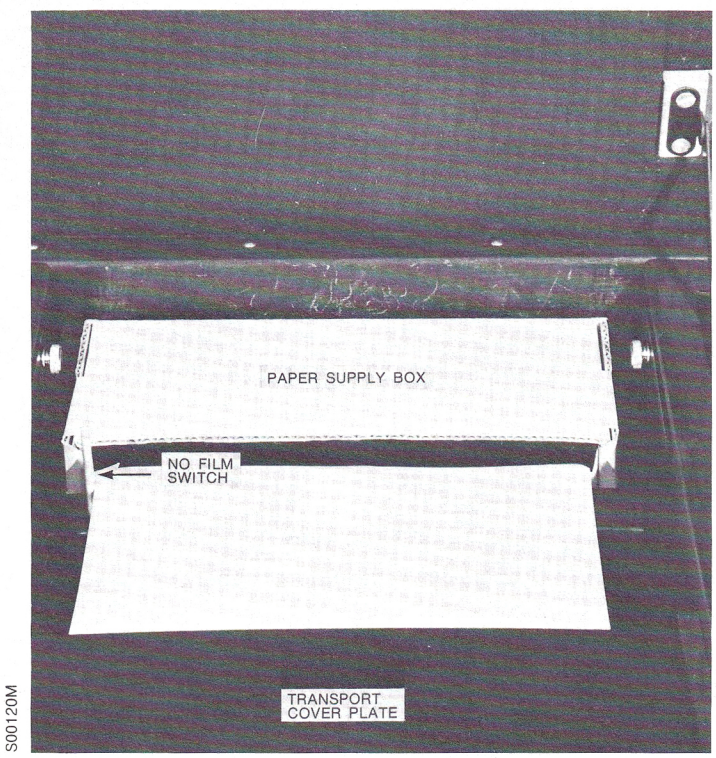


Figure 16. Placement of Paper or Film Box in Holding Compartment.

7. Pull the paper from the box and guide it—emulsion side down—between the left edge of the transport bottom plate and the spacer bar across the plate and through the slot leading to the receiving cassette (Figure 17).

Figure 17. Placement of Spacer Bar and Guiding of Paper Across Baseplate to Cassette.

8. Install the transport cover and tighten the four screws.
9. With a pen or pencil, mark the photo paper at the point where it comes out of the supply box (Figure 18).
10. Close the transport lid. Press and hold the LEAD button until all of the exposed paper (indicated by the pen or pencil mark) is fed through the transport assembly.
11. Cut off the exposed paper (Figure 19) and install the receiving cassette (Figure 20).

RECEIVING CASSETTE REMOVAL AND REPLACEMENT

To remove the receiving cassette, pull the cutter knob to cut photo paper or film and pull the cassette straight out from its receptacle.

To replace the receiving cassette, place it squarely into the opening with the arrow UP, and *gently* push the cassette into place (Figure 20). Be sure not to tilt or cock the cassette or jam it hard into its latch. This action could cause the cassette to hit and burr the slot through which the paper comes, causing scratches on the paper (appearing as black lines when the copy is developed).

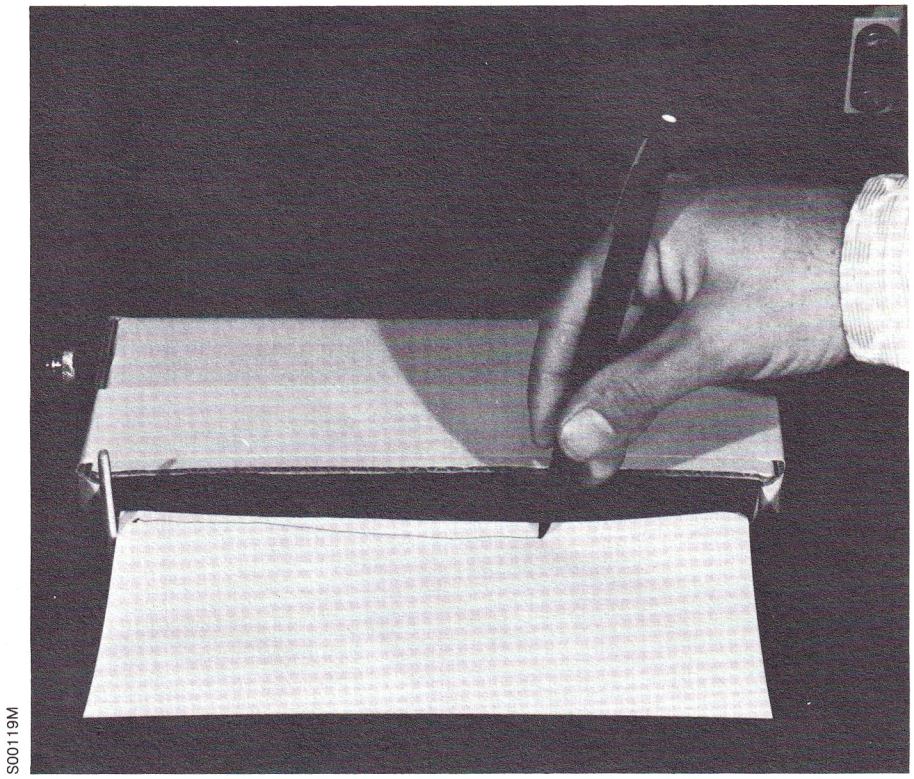


Figure 18. Marking Exposed Photo Paper.

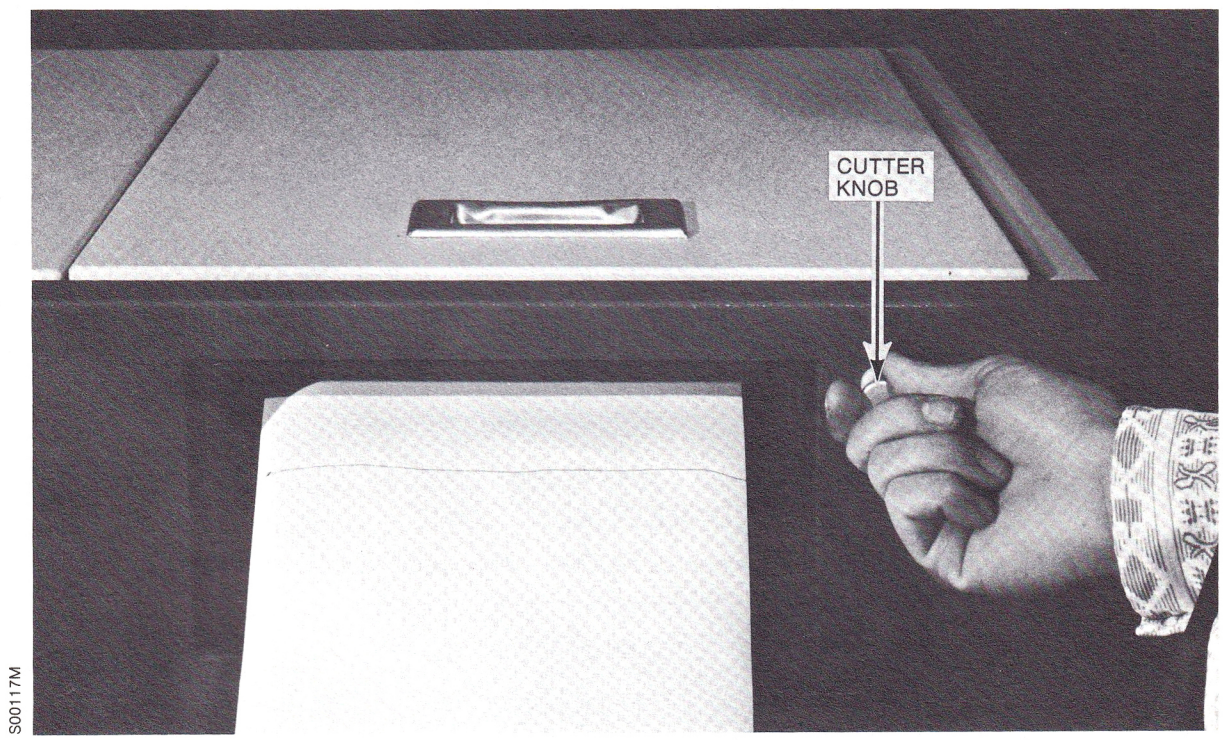
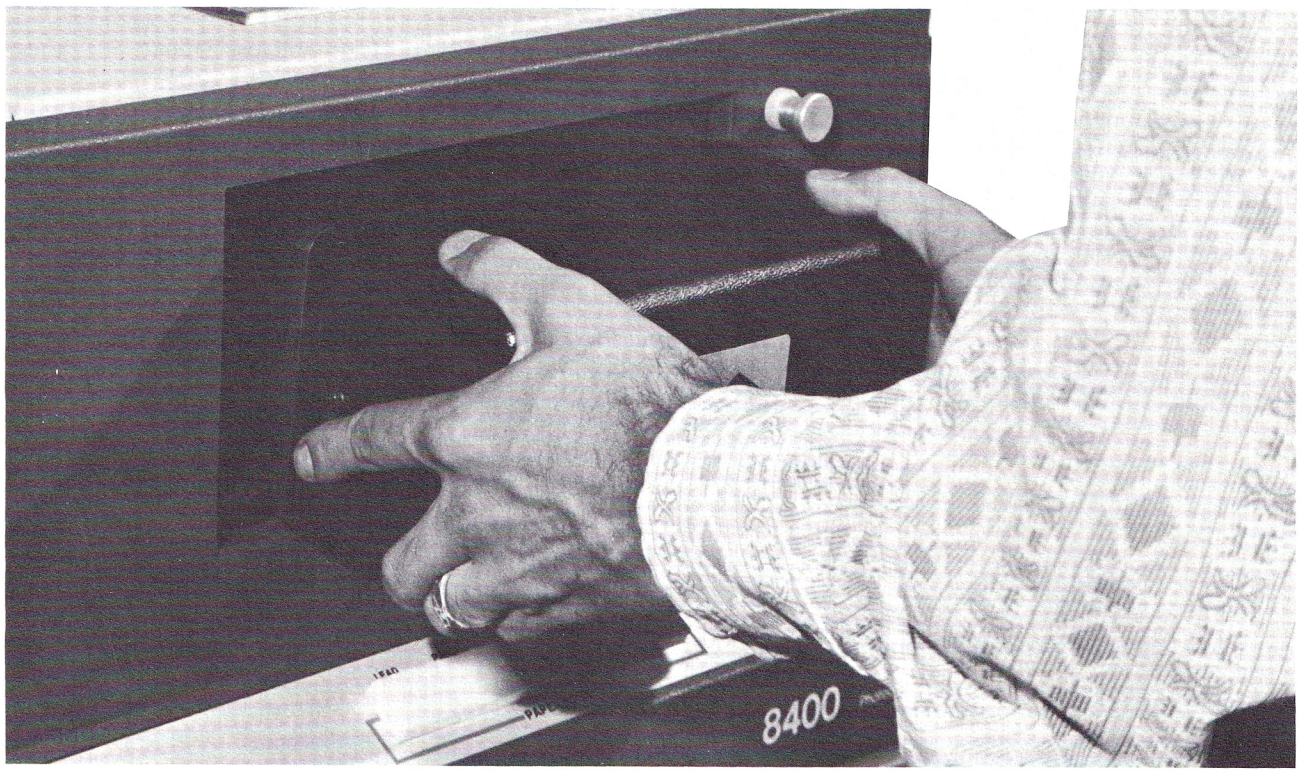


Figure 19. Cutting Off Exposed Photo Paper.



S00121M

Figure 20. Replacement of the Cassette.

LOADING PERMANENT DICTIONARY

1. Place tape containing the Permanent Dictionary in the reader.
2. Press STOP, followed by INITIALIZE.

The lamp in the START switch will pulse as each word is entered into memory. See Section 8 for complete procedures for using and maintaining this dictionary.

LOADING FONT WIDTH TAPES

After a font segment is mounted on the font drum, the Font Width Tape for that font must be loaded into the phototypesetter. See Section 4 for a complete discussion of Font Width Tapes.

The Font Width Tapes can be loaded in any order. If a particular font is not being used for a certain job, the width tape for that font need not be loaded.

Proceed as follows to load the widths for each font:

1. Put the Font Width Tape in the reader with the font position address codes just behind the reader photo-electric cells so they will be the next codes read. For example, if the font segment is mounted in position 3 on the font drum, the codes marked 3 on the tape should be positioned in the reader.
2. Press STOP, followed by INITIALIZE.
3. As soon as the address has been read, the tape will stop. Move the rest of the font position address codes (those for position 4, in this case) past the reader so that the set of character unit values can be read next.
4. Press START. *NOTE: DO NOT press INITIALIZE at this point since pressing INITIALIZE always causes the codes to be read into font position 1.* The tape will stop at the end of the width codes.

LOADING FORMAT STATEMENTS

Format Statements to be stored are loaded into a special portion of the computer memory called the *Format Table*. They are loaded through the reader from paper tape just like any other tapes. See Section 7 for a complete discussion of Format Statements.

The format tapes may be prepared in several ways:

1. With more than one format on a single tape ended with an End-of-Take command (to stop the reader).
2. With more than one format on a single tape, each format followed by an End-of-Take command so the formats may be loaded individually and perhaps altered individually.
3. With single formats on individual tapes, each ended with an End-of-Take command so the tapes may be filed and used individually.
4. With the formats to be stored immediately preceding the text which will use them on the same tape.

In all cases, press INITIALIZE to begin reading a format tape (or format/text tape), and press INITIALIZE or START to continue reading the tape.

Any Format Statement may be added (by pressing INITIALIZE) — providing there is still room for it in the format table — or deleted at any time without affecting the other stored formats.

NOTE: It is suggested that an END-OF-TAKE command be entered at some point between the storing of formats and the use of them, so Error Messages (see Page 69) may be printed if there are coding errors within the formats or if Format Table Overflow has occurred. This saves the operator from wasting time and supplies (and these could be considerable) in trying to use formats which have been improperly coded or, worse, not stored. END-OF-TAKE is the only command which will cause Error Messages to be printed on the typesetter.

RUNNING TEXT TAPES

1. Load the tape into the reader.
2. Press STOP, followed by INITIALIZE.
3. **a.** If more than one take is on the tape and it is desired to continue with the next take on the same piece of photo paper, feed some paper by pressing the LEAD button (if extra lead is not provided for on the tape); then press STOP, followed by INITIALIZE to begin the next take.

   b. If there is only one take on the tape, the tape will stop at an End-of-Take command. Press STOP EOL to feed out enough paper to avoid over-exposing the copy.
4. Cut off the photo paper or film and remove the receiving cassette. The photo paper or film is now ready for processing.

FLASH DENSITY ADJUSTMENT

The flash density adjustment control knob is located on the power supply panel on the left-hand front side of the machine (Figure 21). This control has been set at the factory for optimum image density. However, the density may be reduced or increased to suit different type faces, point sizes, the particular photo paper or film being used or the method of chemical processing used.

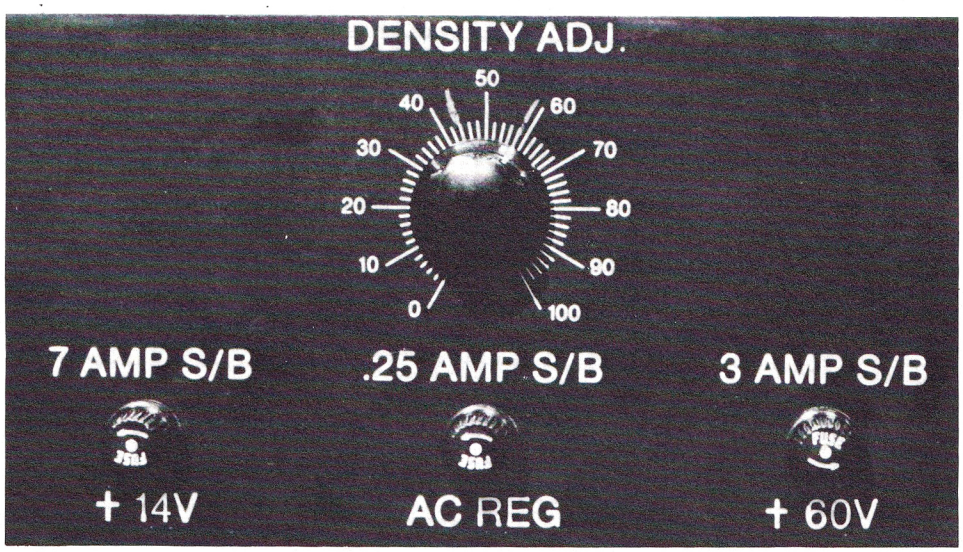


Figure 21. Flash Density Adjustment.

SECTION 3

FONT CONFIGURATION, CODE STRUCTURES, SINGLE KEY FUNCTIONS AND COMMANDS

The Photomix phototypesetter, Series 8400, accepts standard Teletypesetter (TTS®) coded 6-channel punched paper tape 7/8″ or 1″ wide. The paper tape may have advanced feed holes (the leading edge of the feed hole is aligned with the leading edge of the code hole) or in-line feed holes (the center of the feed hole is aligned with the center of the code hole). The feed holes must be 7/16″ (.4375″) from the guide edge of the tape; thus, on a 7/8″ wide tape, the feed holes are centered in the tape.

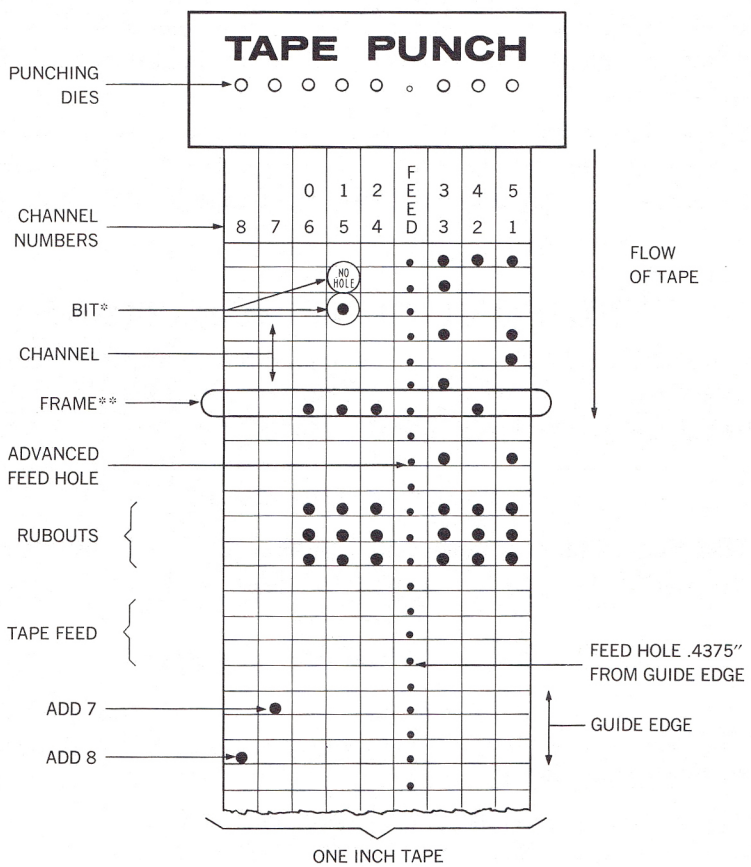


Figure 22. Tape Identification.

PAPER TAPE CHANNEL NUMBERING

The channels of the paper tape used in TTS coding are numbered as follows:

0 1 2 f 3 4 5 ← tape guide edge as punched.
e
e
d

The channels of the paper tape used for Singer coding are numbered as follows:

6 5 4 f 3 2 1 ← tape guide edge as punched.
e
e
d

In this manual, all references to paper tape channel numbers are to the Singer numbering sequence. When numbers in parentheses follow the name of a command or function—for instance, (2-3-4-6)—this is its numeric code structure.

PAPER TAPE PERFORATORS

Singer Graphic Systems manufactures several paper tape perforators which are ideally suited to prepare tape for the Photomix phototypesetter, Series 8400. Among these perforators are the 8251 Electronic Perforator, Model VI, and the 8202 Justoperf. However, any perforator which punches a TTS-coded tape may be used.

The Singer 9400 CRT Editing Terminal is also designed to operate in conjunction with the Photomix phototypesetter, Series 8400, and code conversions may be made within the terminal if the input tape is other than TTS-coded tape.

TYPE FONT CONFIGURATIONS

There are three basic English language type font configurations used in the phototypesetter: Wire Service, News Display and Book. In addition, font configurations for other languages and special-use fonts are available.

WIRE SERVICE FONTS

The Wire Service font configuration is similar to the 282F Wire Service configuration and contains 90 characters as shown in Tables 1, 2 and 3.

NEWS DISPLAY FONTS

News Display fonts contain 102 characters, 90 of which are shown in Tables 1, 2 and 4. Table 6 shows the 12 News Display pi characters and the codes used to access these characters.

In the Shift position, the numbers 1 through 0 and the dollar sign are "3/4 ad" figures which are of the same weight as their corresponding characters in the Unshift position. The 3/4 ad figures are aligned evenly with the top of the Unshift figures. Thus, the 3/4 ad figures can be used effectively in advertising copy to differentiate clearly between dollars and cents.

In News Display fonts, the En Dash prints as a baseline rule.

Table 1

CHARACTER CODES IN NUMERICAL SEQUENCE

TAPE CODE								CHARACTER OR FUNCTION							
Numeric	Visual							Wire Service		News Display		Book		TTS	
	6	5	4	.	3	2	1[1]	Shift	Unshift	Shift	Unshift	Shift	Unshift	Shift	Unshift
	0	1	2	.	3	4	5[2]								
1				.			●	T	t	T	t	T	t	T	t
2				.		●		Merge Copy	Merge Copy	Merge Copy	Merge Copy	Merge Copy	Merge Copy	Return	Return
3				.	●			Space Bar	Space Bar	Space Bar	Space Bar	Space Bar	Space Bar	Space Bar	Space Bar
4			●	.				Kill Word	Kill Word	Kill Word	Kill Word	Kill Word	Kill Word	Elevate	Elevate
5		●		.				E	e	E	e	E	e	E	e
6	●			.				Thin Space	Fig. Space	Thin Space	Fig. Space	Thin Space	Fig. Space	Thin Space	Thin Space
1-2				.		●	●	O	o	O	o	O	o	O	o
1-3				.	●		●	H	h	H	h	H	h	H	h
1-4			●	.			●	L	l	L	l	L	l	L	l
1-5		●		.			●	Z	z	Z	z	Z	z	Z	z
1-6	●			.			●	⅝	5	[3]	5	[3]	5	⅝	5
2-3				.	●	●		N	n	N	n	N	n	N	n
2-4			●	.		●		R	r	R	r	R	r	R	r
2-5		●		.		●		D	d	D	d	D	d	D	d
2-6	●			.		●		‘	’	‘	’	‘	’	‘	’
3-4			●	.	●			I	i	I	i	I	i	I	i
3-5		●		.	●			S	s	S	s	S	s	S	s
3-6	●			.	●			PI Access	PI Access	PI Access	PI Access	PI Access	PI Access	Add Thin	Add Thin
4-5		●	●	.				A	a	A	a	A	a	A	a
4-6	●		●	.				With Chr.	With Ldr.	With Chr.	With Ldr.	With Chr.	With Ldr.	Paper Feed	Paper Feed
5-6	●	●		.				⅜	3	[3]	3	[3]	3	⅜	3
1-2-3				.	●	●	●	M	m	M	m	M	m	M	m
1-2-4			●	.		●	●	G	g	G	g	G	g	G	g
1-2-5		●		.		●	●	B	b	B	b	B	b	B	b
1-2-6	●			.		●	●	&	9	[3]	9	[3]	9	&	9
1-3-4			●	.	●		●	P	p	P	p	P	p	P	p
1-3-5		●		.	●		●	Y	y	Y	y	Y	y	Y	y
1-3-6	●			.	●		●	Em Leader	Em Leader	!	&	]	fl	Em Leader	Em Leader
1-4-5		●	●	.			●	W	w	W	w	W	w	W	w
1-4-6	●		●	.			●	Force Just.	Disc. Hyph.	Force Just.	Disc. Hyph.	Force Just.	Disc. Hyph.	Vert Rule	Vert Rule
1-5-6	●	●		.			●	(	)	(	)	(	)	(	)
2-3-4			●	.	●	●		C	c	C	c	C	c	C	c
2-3-5		●		.	●	●		F	f	F	f	F	f	F	f
2-3-6	●			.	●	●		,	,	,	,	,	,	,	,
2-4-5		●	●	.		●		J	j	J	j	J	j	J	j
2-4-6	●		●	.		●		½	4	[4]	4	[4]	4	½	4
2-5-6	●	●		.		●		+	-	Em Dash	-	Em Dash	-	+	-
3-4-5		●	●	.	●			U	u	U	u	U	u	U	u
3-4-6	●		●	.	●			Em Dash	8	[8]	8	[8]	8	Em Dash	8
3-5-6	●	●		.	●			Mark Tab	Mark Tab	Mark Tab	Mark Tab	Mark Tab	Mark Tab	Em Space	Em Space
4-5-6	●	●	●	.				!	$	[$]	$	!	$	!	$
1-2-3-4			●	.	●	●	●	V	v	V	v	V	v	V	v
1-2-3-5		●		.	●	●	●	X	x	X	x	X	x	X	x
1-2-3-6	●			.	●	●	●	.	.	.	.	.	.	.	.
1-2-4-5		●	●	.		●	●	Shift	Shift	Shift	Shift	Shift	Shift	Shift	Shift
1-2-4-6	●		●	.		●	●	:	;	:	;	:	;	:	;
1-2-5-6	●	●		.		●	●	Supershift	Supershift	Supershift	Supershift	Supershift	Supershift	Upper Rail	Upper Rail
1-3-4-5		●	●	.	●		●	Q	q	Q	q	Q	q	Q	q
1-3-4-6	●		●	.	●		●	?	0	[0]	0	[0]	0	?	0
1-3-5-6	●	●		.	●		●	¾	6	[6]	6	[6]	6	¾	6
1-4-5-6	●	●	●	.			●	¼	2	[2]	2	[2]	2	¼	2
2-3-4-5		●	●	.	●	●		K	k	K	k	K	k	K	k
2-3-4-6	●		●	.	●	●		En Space	Em Space	En Space	Em Space	En Space	Em Space	En Space	En Space
2-3-5-6	●	●		.	●	●		Quad Left	Quad Left	Quad Left	Quad Left	Quad Left	Quad Left	Quad Left	Quad Left
2-4-5-6	●	●	●	.		●		Quad Mid	End Para	Quad Mid	End Para	Quad Mid	End Para	Stop[3]	Stop[3]
3-4-5-6	●	●	●	.	●			⅞	7	[7]	7	[7]	7	⅞	7
1-2-3-4-5		●	●	.	●	●	●	Unshift	Unshift	Unshift	Unshift	Unshift	Unshift	Unshift	Unshift
1-2-3-4-6	●		●	.	●	●	●	Quad Center	Quad Center	Quad Center	Quad Center	Quad Center	Quad Center	Quad Center	Quad Center
1-2-3-5-6	●	●		.	●	●	●	⅛	1	[1]	1	[1]	1	⅛	1
1-2-4-5-6	●	●	●	.		●	●	Unsupershift	Unsupershift	Unsupershift	Unsupershift	Unsupershift	Unsupershift	Lower Rail	Lower Rail
1-3-4-5-6	●	●	●	.	●		●	En Leader	En Leader	En Dash	En Leader	?	En Leader	En Leader	En Leader
2-3-4-5-6	●	●	●	.	●	●		Quad Right	Quad Right	Quad Right	Quad Right	Quad Right	Quad Right	Quad Right	Quad Right
1-2-3-4-5-6	●	●	●	.	●	●	●	Rubout	Rubout	Rubout	Rubout	Rubout	Rubout	Rubout	Rubout

1 - Singer Number Sequence 2 - TTS Number Sequence 3 - Also called Bell Code

Table 2

ALPHABET CODES

Wire Service, News Display and Book Fonts

Character		Codes Punched							
Shift	Unshift	Numeric	Visual						
			6	5	4	.	3	2	1
A	a	4-5		●	●	.			
B	b	1-2-5		●		.		●	●
C	c	2-3-4			●	.	●	●	
D	d	2-5		●		.		●	
E	e	5		●		.			
F	f	2-3-5		●		.	●	●	
G	g	1-2-4			●	.		●	●
H	h	1-3				.	●		●
I	i	3-4			●	.	●		
J	j	2-4-5		●	●	.		●	
K	k	2-3-4-5		●	●	.	●	●	
L	l	1-4			●	.			●
M	m	1-2-3				.	●	●	●
N	n	2-3				.	●	●	
O	o	1-2				.		●	●
P	p	1-3-4			●	.	●		●
Q	q	1-3-4-5		●	●	.	●		●
R	r	2-4			●	.		●	
S	s	3-5		●		.	●		
T	t	1				.			●
U	u	3-4-5		●	●	.	●		
V	v	1-2-3-4			●	.	●	●	●
W	w	1-4-5		●	●	.			●
X	x	1-2-3-5		●		.	●	●	●
Y	y	1-3-5		●		.	●		●
Z	z	1-5		●		.			●

Table 3

WIRE SERVICE SYMBOL CODES

Character		Codes Punched							
Shift	Unshift	Numeric	Visual						
			6	5	4	.	3	2	1
⅛	1	1-2-3-5-6	●	●		.	●	●	●
¼	2	1-4-5-6	●	●	●	.			●
⅜	3	5-6	●	●		.			
½	4	2-4-6	●		●	.		●	
⅝	5	1-6	●			.			●
¾	6	1-3-5-6	●	●		.	●		●
⅞	7	3-4-5-6	●	●	●	.	●		
—	8	3-4-6	●		●	.	●		
&	9	1-2-6	●			.		●	●
?	0	1-3-4-6	●		●	.	●		●
(	)	1-5-6	●	●		.			●
!	$	4-5-6	●	●	●	.			
:	;	1-2-4-6	●		●	.		●	●
+	-	2-5-6	●	●		.		●	
,	,	2-3-6	●			.	●	●	
.	.	1-2-3-6	●			.	●	●	●
‘	’	2-6	●			.		●	
En Leader		1-3-4-5-6	●	●	●	.	●		●
Em Leader		1-3-6	●			.	●		●

Table 4

NEWS DISPLAY SYMBOL CODES

Character		Codes Punched							
Shift	Unshift	Numeric	Visual						
			6	5	4	.	3	2	1
1	1	1-2-3-5-6	●	●		.	●	●	●
2	2	1-4-5-6	●	●	●	.			●
3	3	5-6	●	●		.			
4	4	2-4-6	●		●	.		●	
5	5	1-6	●			.			●
6	6	1-3-5-6	●	●		.	●		●
7	7	3-4-5-6	●	●	●	.	●		
8	8	3-4-6	●		●	.	●		
9	9	1-2-6	●			.		●	●
0	0	1-3-4-6	●		●	.	●		●
(	)	1-5-6	●	●		.			●
!	&	1-3-6	●			.	●		●
_	.	1-3-4-5-6	●	●	●	.	●		●
$	$	4-5-6	●	●	●	.			
:	;	1-2-4-6	●		●	.		●	●
—	-	2-5-6	●	●		.		●	
,	,	2-3-6	●			.	●	●	
.	.	1-2-3-6	●			.	●	●	●
‘	’	2-6	●			.		●	

Table 5

BOOK SYMBOL CODES

Character		Codes Punched							
Shift	Unshift	Numeric	Visual						
			6	5	4	.	3	2	1
1	1	1-2-3-5-6	●	●		.	●	●	●
2	2	1-4-5-6	●	●	●	.			●
3	3	5-6	●	●		.			
4	4	2-4-6	●		●	.		●	
5	5	1-6	●			.			●
6	6	1-3-5-6	●	●		.	●		●
7	7	3-4-5-6	●	●	●	.	●		
8	8	3-4-6	●		●	.	●		
9	9	1-2-6	●			.		●	●
0	0	1-3-4-6	●		●	.	●		●
(	)	1-5-6	●	●		.			●
]	fl	1-3-6	●			.	●		●
?	.	1-3-4-5-6	●	●	●	.	●		●
!	$	4-5-6	●	●	●	.			
:	;	1-2-4-6	●		●	.		●	●
—	-	2-5-6	●	●		.		●	
,	,	2-3-6	●			.	●	●	
.	.	1-2-3-6	●			.	●	●	●
‘	’	2-6	●			.		●	

Table 6

PI CHARACTERS

The following pi characters may be punched in either the Unshift or the Shift position.

Numeric Code	News Display Fonts	PI Access (3-6) Followed by This Key	Book Fonts
1-2-3-5-6	★	1	†
1-4-5-6	□	2	*
5-6	©	3	+
2-4-6	'	4	¶
1-6	®	5	/
1-3-5-6	+	6	§
3-4-5-6	?	7	fi
3-4-6	/	8	[
1-2-6	*	9	°
1-3-4-6	°	0	'
2-3-6	%	,	&
1-2-3-6	●	.	%

BOOK FONTS

Book fonts contain 102 characters, 90 of which are shown in Tables 1, 2 and 5. Table 6 shows the 12 Book pi characters and the codes used to access these characters.

In the Shift position, the numbers 1 through 0 are superior figures.

SINGLE KEY FUNCTIONS AND COMMANDS

Many functions and commands may be accessed with single keystrokes on *most* keyboards. Some are standard keys on all phototypesetter input keyboards; others are unique to the Photomix phototypesetter, Series 8400. Some keys access the same function or command in both the Unshift and Shift conditions; others access one function or command in Unshift and another in Shift.

A complete list of all of the coding for the phototypesetter is incorporated in Table 1. In the two tables which follow (Tables 7 and 8), all functions and commands are shown separately. This is done as an aid to the keyboard operator, especially where existing keyboards may be involved which are not configured for this phototypesetter with appropriate keycaps. The standard TTS function for each code is shown as a basis for comparison. **Remember that regardless of how a key is labeled, all that matters is that the correct code is produced.**

Table 7

SINGLE KEY FUNCTIONS

Function		Numeric Code	Standard TTS Function
Shift	**Unshift**		
Opening and closing commands:			
Supershift	Supershift	1-2-5-6	Upper Rail
Unsupershift	Unsupershift	1-2-4-5-6	Lower Rail
Fixed spaces:			
En Space	Em Space	2-3-4-6	En Space
Thin Space	Figure Space	6	Thin Space
Shift conditions:			
Shift	n/a	1-2-4-5	Shift
Shift Lock	n/a	1-2-4-5	Shift Lock
n/a	Unshift	1-2-3-4-5	Unshift
PI Access	PI Access	3-6	Add Thin
Space Bar	Space Bar	3	Space Bar
Rubout	Rubout	1-2-3-4-5-6	Rubout

SUPERSHIFT/UNSUPERSHIFT

These codes are used for opening and closing commands. They will be discussed in Section 5.

EN SPACE/EM SPACE

The En Space and Em Space are accessed by the same key. In the Shift condition, an 18-unit En Space is set. In the Unshift condition, a 36-unit Em Space is set. *Fixed spaces may be kerned like characters.*

THIN SPACE/FIGURE SPACE

These spaces are accessed by the same key. In the Shift condition, a 9-unit Thin Space (1/2 of an En Space) is set. In the Unshift condition, a Figure Space is set. The Figure Space is calculated by the computer, and is equal to the numbers on the font in use. When it is necessary to escape the value of a number, this code causes the computer to look up the width table for the font and make this space equal in unit value to the numbers. The Figure Space is therefore useful in setting tabular matter. The Thin Space is equal in unit value to periods and commas on most fonts, so in many cases it may be used in combination with the Figure Space for escaping numeric values containing decimals and commas. *Fixed spaces may be kerned like characters.*

SHIFT, SHIFT LOCK, UNSHIFT

All characters following the Shift code are set in upper case until an Unshift code is detected. All characters following the Unshift code are set in lower case until a Shift code is detected.

SECRETARY SHIFT NOTE: On tape perforators with a Secretary Shift whenever the SHIFT key is released, an Unshift code is punched in the tape. However, to release the SHIFT LOCK key requires touching the SHIFT key on perforators that do not have an UNSHIFT key. In such case, an additional Shift code is punched. Extraneous Shift and Unshift codes are ignored by the phototypesetter. If, however, economy of codes is required (in format statements, for instance), the extra Shift code may be eliminated in this manner: Turn the punch off, touch and hold the SHIFT key, turn the punch back on, release the SHIFT key, and only the Unshift code will be punched.

SPACE BAR

The Space Bar code is used for normal word spaces in the copy. Depending on the type of copy being set (justified or quadded), the typesetter will either set fixed word spaces or expandable word spaces to fulfill the copy or justification requirements.

RUBOUT

The Rubout code is a delete code which is ignored. It is punched by manually reversing the tape in the punch until the unwanted code is under the punch head, and then pressing the RUBOUT key.

Table 8

SINGLE KEY COMMANDS

As will be seen in Section 5, *Command Language*, the normal structure for typesetter commands requires three keystrokes. For ease and speed in keyboarding, many of the most frequently used commands have been made accessible with single keys available on most TTS keyboards. In later sections, especially in examples, these commands will often be referred to as "single key commands".

Command		Numeric Code	Standard TTS Function
Shift	Unshift		
Force Justify	Discretionary Hyphen	1-4-6	Vertical Rule
Quad Middle	End Paragraph	2-4-5-6	Bell (Stop)
With Character	With Leader	4-6	Paper Feed
Mark Tab	Mark Tab	3-5-6	Em Space
Merge Copy	Merge Copy	2	Return
Quad Left	Quad Left	2-3-5-6	Quad Left
Quad Right	Quad Right	2-3-4-5-6	Quad Right
Quad Center	Quad Center	1-2-3-4-6	Quad Center
Kill Word	Kill Word	4	Elevate

SECTION 4

FONT WIDTH TAPES

Each font segment is supplied with a font width tape which contains the relative unit values assigned to each character on the font. Included with the font is a width chart showing the values assigned by the type designer as they appear on the font width tape.

The widths assigned to fixed spaces (thin, em and en spaces) and word spaces are for use by other Photomix phototypesetter models, and will be ignored by the Photomix phototypesetter, Series 8400. This includes position numbers 5, 37, 65, 79, 85, 97, 111 and 117. The values for these fixed and word spaces are assigned by the computer software; word spacing may be altered by tape command, and fixed spaces may be kerned by tape command. Positions 91 and 123 (stop) will also be ignored since they are not used in the operation of this phototypesetter.

Type fonts are designed to a 36-unit system (36 units to the em). That is, any character may have a value of from zero to 36 relative units which are assigned by special tape codes (Table 9). Any character or fixed space on the font may be kerned by tape command, and the entire set width of a font may be changed by tape command. Word spacing also may be altered by tape command. See Sections 5 and 6 for complete discussion and use of *Kern Character*, *Change Interword Spacing* and *Change Set Width.*

Given these controls of spacing by tape command, it will generally be found that it is rarely necessary to alter a width tape. However, for purposes of aesthetics or special application, it is possible to alter the relative unit value of any or all the characters on the font either by reducing or expanding the escapement assigned by the type designer (see below).

NOTE: Most characters are left and base aligned; i.e., the relative unit width value of any character includes its normal escapement, covering the distance from the left-hand edge of the character to the point where the next character begins.

Table 9

FONT WIDTH CODES

Relative Width (Units)	Width Tape Code*
0	N
1	With Ldr/With Chr
2	2
3	3
4	4
5	T
6	6
7	H
8	M
9	L
10	R
11	G
12	I
13	P
14	C
15	V
16	E
17	Z
18	D
19	B
20	S
21	Y
22	F
23	X
24	A
25	W
26	J
27	Shift
28	U
29	Q
30	K
31	Unshift
32	Thin/Fig Space
33	5
34	Quote
35	9
36	PI Access

* These codes represent Photomix phototypesetter (Series 8400) configuration. For standard TTS configuration, please refer to Table 1, page 27.

Table 10

FONT POSITION ADDRESS CODES

The address codes shown in the table below serve to inform the computer which font position is represented by the width codes which follow on the width tape. The width codes are stored in the *Width Table* of the machine.

Position	Numeric Tape Code	Photomix phototypesetter (Series 8400) Equivalent	TTS Equivalent
Font 1	4-6 1-2-4-5-6 2-4-5-6	With Ldr/With Chr Unsupershift End Para/Quad Mid	Paper Feed Lower Rail Bell*
Font 2	4-6 1-2-5-6 2-4-5-6	With Ldr/With Chr Supershift End Para/Quad Mid	Paper Feed Upper Rail Bell*
Font 3	2-3-4-5-6 1-2-4-5-6 2-4-5-6	Quad Right Unsupershift End Para/Quad Mid	Quad Right Lower Rail Bell*
Font 4	2-3-4-5-6 1-2-5-6 2-4-5-6	Quad Right Supershift End Para/Quad Mid	Quad Right Upper Rail Bell*

FONT WIDTH TAPE CODE SEQUENCE

Font width tapes are supplied with either one of two formats:

Format 1

Font name punched in readable form
Position address codes for Font 1†
Position address codes for Font 2†
Position address codes for Font 3†
Position address codes for Font 4†
1 set of character unit values†
Font part number punched in readable form

Format 2

Font name punched in readable form
Position address codes for Font 1†
1 set of character unit values†
Position address codes for Font 2†
1 set of character unit values†
Position address codes for Font 3†
1 set of character unit values†
Position address codes for Font 4†
1 set of character unit values†
Font part number punched in readable form

* In the process of loading Width Tapes, the Bell code serves to stop the reader.

† Always followed by the Bell code (2-4-5-6) which stops the reader. The Bell code is effective only when width tapes are being loaded.

The code sequence for the set of character unit values is as follows:

PI ACCESS (3-6)*	Indicates to the phototypesetter that the following codes are width codes.
W	
Exactly 128 width codes	
BELL (2-4-5-6)	The last code on the tape.

MAKING A NEW FONT WIDTH TAPE

If a width tape is lost or damaged or if the widths of several characters are to be changed, a new width tape can be made as follows:

1. Punch the font position address codes for Font 1, being sure to follow the address codes with the Bell code. Follow by approximately 4 inches of tape feed.
2. Follow step 1 for Fonts 2, 3 and 4 position address codes.
3. Punch PI ACCESS (3-6) followed by W.
4. Punch exactly 128 unit value codes in exactly the same order as listed in the width chart supplied with the font.
5. Punch a Bell code (2-4-5-6).

If the width of a character is to be changed, find the position of that character on the width chart and note the number of units assigned. Using the Font Width Code chart (Table 9), determine the code for the new value to be assigned. Punch that code at the position of the character as indicated on the width chart.

IMPORTANT NOTE: When punching a font width tape, the 128 unit value codes must be strictly in the order indicated on the width chart. EXTRANEOUS TAPE FEED OR RUBOUT CODES WILL CAUSE THE TAPE TO BE REJECTED BY THE COMPUTER!

MAKING A MODIFIED FONT WIDTH TAPE

If only one or two widths need to be modified for a special application, a modified width tape can be made. For example, a certain application requires that the *dot leader* have an escapement of 16 units instead of the normal 18 units. To change the value, proceed as follows:

1. Determine the position of the leader (En Ldr) on the width chart; the position is 94.
2. Determine the code for 16 units of width (Table 9), which is "E."
3. Punch PI ACCESS (3-6).
4. Punch W.
5. Punch 93 Space Bar codes.
6. Punch E in the 94th position.
7. Punch 34 Space Bar codes.

} 128 codes total

* Equivalent of TTS Add Thin code.

8. Punch a Bell code (2-4-5-6).
9. Load the regular font width tape into memory (see page 21).
10. Load the new modified tape into the same font position as the regular font width tape. The value of the dot leader is now changed to 16 units. All the other character unit values are unchanged.

AUTOMATIC LEADING = *1/3 largest point size in previous line + 2/3 largest point size in current line.*

This formula is based on the assumption that with the average typeface, 2/3 of the average character extends above the baseline (ascenders), and 1/3 of the character drops below the baseline (descenders). Therefore, if the same *largest size appears in all lines, the leading for all lines will be* equal *(1/3 of the point size + 2/3 of the same point size = leading equal to the point size). If the largest sizes in two adjacent lines are different, however, the leading will be adjusted accordingly.*

ZERO LEADING

SUPERSHIFT
Z
L

This command affects *only* the current line, and should appear at the *beginning* of the line for which a leading advance is *not* wanted. It will inhibit the normal leading advance for that line; then the leading previously in effect (automatic *or* stored) is resumed.

TERMINATION NOTE: Since this command affects only the current line, it terminates itself. However, if a stored leading value — for instance ⟨CL12⟩ *— is entered following the* ⟨ZL *command on the current line, the zero lead will be ignored and the stored leading will be in effect.*

SPECIAL NOTE: The ⟨ZL *command differs from a Change Leading command of zero —* ⟨CL0⟩ *— which not only causes zero lead, but also cancels the stored leading and causes automatic leading after the current line is set.*

INCREMENT AUTOMATIC LEADING

SUPERSHIFT
I
A
amount of incremental leading
in points and half-points
UNSUPERSHIFT

This command operates in conjunction with the computed automatic leading value, and will add to it the amount of points computed.

TERMINATION NOTE: The ⟨IA *command will be overridden by a new* ⟨IA *command. It will be terminated by a* ⟨ET *(End-of-Take), by setting* ⟨IA0⟩ *(Increment Automatic Leading Zero), or by a* ⟨CL *(Change Leading) command.*

KILL CHANGE LEADING

SUPERSHIFT
K
L

This command will cancel any Change Leading amount in effect and cause the automatic leading to be used by the typesetter.

SPECIAL NOTE: If no Change Leading amount is in effect, this command will be ignored.

EXTRA LEADING

SUPERSHIFT
E
L
amount of leading in
points and half-points
UNSUPERSHIFT

This is a one-time-only command. It immediately causes forward leading in the number of points specified; then the stored or automatic leading will be executed for the next line to be set.

NOTE: Up to 1,000 points (13⁸/₉″) *of immediate forward leading may be specified with one command. For greater leading, the command may be repeated.*

REVERSE LEADING

SUPERSHIFT
R
V
amount of leading in
points and half-points
UNSUPERSHIFT

This is a one-time-only command. It immediately causes reverse leading in the number of points specified; then the stored or automatic leading will be executed for the next line to be set.

NOTE: Up to 1,000 points (13⁸/₉″) *of immediate reverse leading may be specified with one command. For greater reverse leading, the command may be repeated.*

HYPHENATION AND JUSTIFICATION COMMANDS

CHANGE INTERWORD SPACING

SUPERSHIFT
C
S
minimum interword space
COMMA
optimum interword space
COMMA
maximum interword space
UNSUPERSHIFT

The values in this command are expressed in the same relative units which are used to specify the width of a character on the width tapes. The command takes effect on the first complete line following the command.

The standard values for interword spacing resident in the software are as follows:

Minimum = 8 units Optimum = 12 units Maximum = 30 units

These values would be expressed in the command ⟨CS8,12,30⟩. The ⟨CS command may be used to change any or all of these spacing values at any time.

TERMINATION NOTE: The Change Interword Spacing command is permanently stored and will be replaced ONLY by another ⟨CS *command.*

SPECIAL NOTE: If no value is entered for a given parameter, the value currently in use will still be in effect. For example, if the values of 4, 8 and 16 are in effect and a ⟨CS,9,18⟩ *is issued, the values will now be 4, 9 and 18. All commas dividing values must be present, whether the values be expressed or not.*

Use of Interword Spacing in Justification

A *quadded line* will use the specified optimum word spacing.

A *justified line* will use the range of minimum to maximum spacing. If an amount of interword space greater than maximum is required to justify a line, hyphenation of the overflow word (if hyphenation has not been canceled) is attempted. If the required interword space still exceeds the maximum interword value (after hyphenation), letterspacing (up to a maximum) will be attempted if letterspacing has not been canceled. The interword spacing will now, *as a last resort*, be allowed to expand as required for justification.

ALLOW LETTERSPACING

SUPERSHIFT
A
L

With this command, letterspacing will be reallowed for line justification, if it has been previously canceled.

TERMINATION NOTE: Letterspacing is terminated by a ⟨XL *(Cancel Letterspacing) command.*

SPECIAL NOTE: Letterspacing is a last resort for justification. The necessary space will be evenly distributed among all characters on the line.

CANCEL LETTERSPACING

SUPERSHIFT
X
L

This command cancels the ⟨AL (Allow Letterspacing) command and causes letterspacing not to be used in the justification process.

TERMINATION NOTE: The command is terminated by a ⟨AL *command. With a* ⟨ET *(End-of-Take) command, it will also be canceled and the Installation Standard (which does allow letterspacing) will be used.*

ALLOW HYPHENATION

SUPERSHIFT
A
H

This command will allow hyphenation for the justification process if hyphenation has been previously canceled.

TERMINATION NOTE: Hyphenation will be terminated by a ⟨XH *(Cancel Hyphenation) command.*

SPECIAL NOTE: Hyphenation will occur if: (1) the line must exceed maximum spacing in order to justify; (2) the word exceeds five characters; and (3) at least one hyphen point can be found. These three conditions must be satisfied.

CANCEL HYPHENATION

SUPERSHIFT
X
H

This command will *not allow* hyphenation, and justification will have to be achieved by word and letterspacing alone.

TERMINATION NOTE: The command is terminated by a ⟨AH *(Allow Hyphenation) or by a* ⟨ET *(End-of-Take) command.*

DISCRETIONARY HYPHENATION

SUPERSHIFT
H OR SINGLE KEY
H

This command is used to indicate a hyphen point within a word and is in effect only at the specific point it is used. The *Discretionary Hyphen* can be used to force hyphenation at a selected point.

SPECIAL NOTE: If at least one Discretionary Hyphen appears in a word, the dictionaries and logical hyphenation will be bypassed; so if one hyphenation point is indicated with a Discretionary Hyphen, all possibilities should be indicated. If more than one Discretionary Hyphen appears in a word, the one resulting in the tightest line is used.

RAGGED LEFT

SUPERSHIFT
R
L

All lines following this command will be set ragged left/flush right. Interword spacing will always be at the minimum amount.

TERMINATION NOTE: Ragged Left is terminated by any of the following commands: ⟨ET *(End-of-Take),* ⟨XR *(Cancel Ragged Margin),* ⟨(RC *(Ragged Center), or* ⟨RR *(Ragged Right).*

SPECIAL NOTE: This command automatically cancels hyphenation and letterspacing. If hyphenation is desired for an appearance that is less ragged, it may be indicated with the ⟨AH *command, which must immediately follow the* ⟨RL *command . . . ⟨RL⟨AH.*

Hyphenation and letterspacing will be automatically restored upon cancellation of the ragged mode with the ⟨XR *(Cancel Ragged) or* ⟨ET *(End-of-Take) commands.*

RAGGED RIGHT

SUPERSHIFT
R
R

All lines following this command will be set flush left/ragged right. Interword spacing will always be at the minimum amount.

TERMINATION NOTE: Ragged Right is terminated by any of the following commands: ⟨ET *(End-of-Take),* ⟨XR *(Cancel Ragged Margin),* ⟨RL *(Ragged Left), or* ⟨RC *(Ragged Center).*

SPECIAL NOTE: This command automatically cancels hyphenation and letterspacing. If hyphenation is desired for an appearance that is less ragged, it must be indicated with the ⟨AH *command, which must immediately follow the* ⟨RR *command . . .* ⟨RR⟨AH.

Hyphenation and letterspacing will be automatically restored upon cancellation of the ragged mode with the ⟨XR *(Cancel Ragged) or* ⟨ET *(End-of-Take) commands.*

RAGGED CENTER

SUPERSHIFT
R
C

All lines following this command will be set centered, ragged left and ragged right. Interword spacing will always be at the minimum amount.

TERMINATION NOTE: Ragged Center is terminated by any of the following commands: ⟨ET *(End-of-Take),* ⟨XR *(Cancel Ragged Margin),* ⟨RL *(Ragged Left) or* ⟨RR *(Ragged Right).*

SPECIAL NOTE: This command automatically cancels hyphenation and letterspacing. If hyphenation is desired for an appearance that is less ragged, it must be indicated with the ⟨AH *command, which must immediately follow the* ⟨RC *command . . .* ⟨RC⟨AH.

Hyphenation and letterspacing will be automatically restored upon cancellation of the ragged mode with the ⟨XR *(Cancel Ragged) or* ⟨ET *(End-of-Take) commands.*

CANCEL RAGGED MARGIN

SUPERSHIFT
X
R

The command cancels any *Ragged Left, Ragged Right* or *Ragged Center* command. Hyphenation and letterspacing are restored.

END OF LINE COMMANDS

QUAD LEFT, QUAD RIGHT, QUAD CENTER

SUPERSHIFT	**SUPERSHIFT**	**SUPERSHIFT**
Q	**Q**	**Q**
L	**R**	**C**
OR SINGLE KEY	OR SINGLE KEY	OR SINGLE KEY

Non-Tab Mode

The material *preceding* the command is set flush left, flush right or centered within the measure. This command applies only to the one line of text which it

follows. Interword spacing will always be at the optimum amount. The line will be leaded to the stored amount or the automatic leading computation, whichever is in effect.

LEADING NOTE: In the Non-Tab Mode, leading occurs ONLY if the quadding commands are preceded by characters or fixed space within the current line.

Tab Mode

If the line has been marked for tabbing, and tabs have been set, the material *preceding* the quadding command is set flush left, flush right or centered within the current tab column. In addition to performing its normal function within the column, a quadding command will tab to the next column; any quadding command (or ⟨JU) may be used to tab over blank columns.

No leading will take place within the line unless column overflow occurs or until a ⟨QT (Quit Tab Line) or another ⟨MA (Mark Beginning Tab) is issued.

OVERFLOW NOTE: If the copy overflows the current column, it will be set justified (or ragged, if so specified) within the column, with the stored or automatic leading which is in effect at the time.

JUSTIFY LINE

SUPERSHIFT
J
U
OR SINGLE KEY

This command terminates and justifies the line, and applies *only* to the current line. Interword spacing is expanded to fill the line. This command may be used for forced justification, either within a column of regular justified text or within a tab column. When the ⟨JU command is used to terminate a tab column, letterspacing *must* be canceled.

LEADING NOTE: The leading value in effect will be used, but ONLY if the command is PRECEDED by characters within the current line.

TABBING COMMANDS

TAB SET

SUPERSHIFT
T
S
the location of the right margin of
each tab column — measured in picas
and/or points from the left margin —
separated with commas
UNSUPERSHIFT

This is a "set-up" command and has no effect until the text has been designated as "tabular" by the ⟨MA (Mark Beginning Tab) command. The sum of the individual tabular column widths must not exceed the total column measure. A maximum of 20 columns is available with one command.

Special Tabbing Considerations

1. The typesetter will *ignore* the ⟨TS command if the sum of the tabular column widths exceeds the total measure and will set the table to the Installation Standard (see Section 9). If the total column measure cannot accommodate the widths of the individual tabular columns, the column widths *or* the measure must be changed.
2. Each tab column width is measured from the *left margin* of the *total column measure*. If the respective widths of 4 columns are 2, 7, 2 and 5 picas, and the overall measure is 16 picas, the command will be ⟨TS2,9,11⟩. Each tab column width is added to the total of those that go before it, reaching a grand total of the overall column measure. The last column need not be specified since its right margin is the overall column measure.
3. If the ⟨TS command is not given following a line ending command, the current line is terminated and quadded left.
4. See Appendix F for a complete discussion of the effects of indenting on the tab setting commands.

TERMINATION NOTE: The Tab Set command will be overridden by any new tab-setting command. It will be terminated by a ⟨XT *(Cancel Tab) command or a* ⟨ET *(End-of-Take) command. The Tab Mode will be temporarily suspended by the* ⟨QT *(Quit Tab) command, so one may set across the entire measure. The Tab Mode then may be re-entered with a* ⟨MA *(Mark Beginning Tab) command.*

TAB NUMBER

SUPERSHIFT
T
N
number of tab columns
UNSUPERSHIFT

This is a "set-up" command and has no effect until the text has been designated as "tabular" by the ⟨MA (Mark Beginning Tab) command.

The column measure will be divided *equally*, to the nearest point, into the number of tab columns specified in the command.

Example

If the total measure is 30 picas and the number of tab columns has been specified as 6, each column will be 5 picas wide.

A maximum of 20 columns may be specified within the measure.

TERMINATION NOTE: The Tab Number command will be overridden by any new tab-setting command. It will be terminated by a ⟨XT *(Cancel Tab) command or a* ⟨ET *(End-of-Take) command. The Tab Mode will be temporarily suspended by the* ⟨QT *(Quit Tab) command, so one may set across the entire measure. The Tab Mode then may be re-entered with a* ⟨MA *(Mark Beginning Tab) command.*

SPECIAL NOTE: If left and/or right indents are in effect, the number of columns specified by the ⟨TN *command will be divided into the measure* REMAINING AFTER *the indents have been subtracted. See Appendix F for a complete discussion of the effects of indenting on the tab setting commands.*

If the ⟨TN *command is not given following a line ending command, the current line is terminated and quadded left.*

TAB PROPORTION

SUPERSHIFT
T
P
the proportional value of each
column — separated with commas
UNSUPERSHIFT

This is a "set-up" command and has no effect until the text has been designated as "tabular" by the ⟨MA (Mark Beginning Tab) command.

The tab column widths are computed in the following manner:

Example

Given: The column measure is 21 picas. The Tab Proportion command is ⟨TP2,1,4⟩ . . .

1. The column measure is divided by the sum of the proportional values:
   $2 + 1 + 4 = 7 \qquad 21 \div 7 = 3$
2. The resulting quotient is multiplied by each proportional value selected for the tab column widths:
   $2 \times 3 = 6 \qquad 1 \times 3 = 3 \qquad 4 \times 3 = 12$
3. The three resulting tab columns have widths of 6, 3 and 12 picas.

A maximum of 20 columns is available. Proportional values are restricted to *whole numbers*, although the overall measure is not.

TERMINATION NOTE: The Tab Proportion command will be overridden by any new tab-setting command. It will be terminated by a ⟨XT *(Cancel Tab) command, or a* ⟨ET *(End-of-Take) command. The Tab Mode will be temporarily suspended by the* ⟨QT *(Quit Tab) command, so one may set across the entire measure. The Tab Mode then may be re-entered with the* ⟨MA *(Mark Beginning Tab) command.*

SPECIAL NOTE: If left and/or right indents are in effect, the amount of measure REMAINING, AFTER *the indents have been subtracted, will be used to compute the pica values of the tab proportions. See Appendix F for a complete discussion of the effects of indenting on the tab setting commands.*

If the ⟨TP *command is not given following a line ending command, the current line is terminated and quadded left.*

TAB TEXT

SUPERSHIFT
T
T

This is a "set-up" command and has no effect until the text has been designated as "tabular" by the ⟨MA (Mark Beginning Tab) command.

The command defines the current position in copy (including any indents on the current line) as a right tab column margin. That is, wherever the ⟨TT command is entered becomes a division between columns.

A maximum of 19 *Tab Text* commands (20 columns) may be entered on a single line. The tab columns cannot be used until the line containing the *Tab Text* (set-up) commands has been terminated.

TERMINATION NOTE: The Tab Text command will be overridden by any new tab-setting command, including any new ⟨TT *command in a subsequent*

line. It will be terminated by a ⟨XT *(Cancel Tab) command or a* ⟨ET *(End-of-Take) command. The Tab Mode will be temporarily suspended by the* ⟨QT *(Quit Tab) command, so one may set across the entire measure. The Tab Mode then may be re-entered with the* ⟨MA *(Mark Beginning Tab) command.*

SPECIAL NOTE: The current position (column margin) is computed after all quadding or justification has been completed.

The start of the first tab column and the end of the last tab column are the left and right margins — including adjustments for indents. See Appendix F for a complete discussion of the effects of indenting on the tab setting commands.

MARK BEGINNING TAB

SUPERSHIFT
M
A OR SINGLE KEY

This command designates the beginning of tabular material, and must be used following all of the foregoing tab setting commands. The ⟨MA command provides recognition for the tabular "set-up" command which precedes it, indicating the beginning of a tabular line.

TERMINATION NOTE: A line begun by the ⟨MA *command is terminated by a* ⟨QT *(Quit Tab Line) command.*

SPECIAL NOTE: The ⟨MA *command may appear at any position within the line. It will set any preceding text quad left and begin a new line automatically.*

A ⟨QT *(Quit Tab Line) command is automatically produced by the* ⟨MA *command before the new tab line is started. The Tab Mode will be momentarily suspended in order to begin a new line.*

QUIT TAB LINE

SUPERSHIFT
Q
T

The ⟨QT command acts as terminator of the tab line, since quadding commands become *column* terminators in the tabular mode. As terminator of the line, it will cause the stored or automatic leading to be executed in the normal manner before the line is set. This holds true as well when an internal ⟨QT is produced by the ⟨MA command.

The ⟨QT command will also suspend the tab mode for the line. The tab mode will be activated again by another ⟨MA command at the beginning of the line in which it is desired.

SPECIAL NOTE: If a quad code does not immediately precede the ⟨QT *command, it will automatically quad left and end the preceding line, or column, before the leading is executed.*

If the line has not been marked for tabbing, the ⟨QT *command will be ignored.*

CANCEL TABS

SUPERSHIFT
X
T

All tab setting commands will be terminated. It is seldom necessary to use this command, since the ⟨QT (Quit Tab Line) command will suspend the Tab Mode when it is no longer desired, and any new tab setting command will automatically cancel any old one. The command may, however, be used for peace of mind to clear tabs when no more tabbing is to be done, so that if the MA key is struck in error the Tab Mode will not be entered inadvertently.

VERTICAL CONTROL COMMANDS

POINT MARK

SUPERSHIFT
P
M

Used in conjunction with the ⟨RM (Return Mark) command.

The current vertical position on the page is "saved" for future use. At a later time during the take, this *Point Mark* position is returned to by use of the ⟨RM (Return Mark) command.

The ⟨PM command *normally* is issued at the top of a column. The placement of the command depends upon whether text is being set in the Non-Tab Mode or in the Tab Mode.

Non-Tab Mode

To ensure that it marks the first baseline, the Point Mark command must be followed by a Quad Left command; and these two commands should immediately *precede* the text. For example:

⟨**PM**⟨**QL**text . . .

This command sequence should be adhered to (in Non-Tab Mode) even when text does not appear on the line, in which case the Quad Left command specifies the baseline. When a return is made to the Point Mark with the ⟨RM (Return Mark) command, typesetting will continue on the marked baseline.

Tab Mode

When a tabular command is in effect and the line has been marked for tabbing, the Point Mark command should follow the first word of the first column:

⟨**MA**word⟨**PM**text continues. . .

In this case, when a return is made to the Point Mark with the ⟨RM command, typesetting will continue on the marked baseline.

However, in instances where, in the Tab Mode, it is necessary to mark a baseline which presently has no text on it (in a Stored Format, for example) the following command sequence may be used:

EM SPACE⟨PM⟨QL⟨ZL⟨MAtext of first column (or ⟨MC in a format)

The Point Mark appears within a line of text (em space) which is leaded from the previous baseline. The ⟨MA command is then preceded by a ⟨ZL (Zero Leading) command to inhibit further leading of the first line of column one. Typesetting (or merging, if this is within a Stored Format) and tabbing may follow, with as many returns to the Point Mark as desired. In each subsequent column, typesetting will continue — following a return to the Point Mark — on the marked baseline. However, each time a new Point Mark is specified in the Tab Mode, the above command sequence must be followed for marking the tab line.

It is suggested that the vertical control commands be used for the most part within stored formats (see Section 7), so the user has the power to alter what they do without in any way affecting the coding in the text stream.

TERMINATION NOTE: A new ⟨PM *command resets the Point Mark at a new position, automatically canceling the last position. Any Point Mark which has been previously set will be set to zero with a* ⟨ET *(End-of-Take) command.*

RETURN MARK

SUPERSHIFT	*Used in conjunction with the*
R	⟨PM *(Point Mark) command.*
M	

The vertical position saved by the ⟨PM (Point Mark) command is returned to immediately by leading the appropriate number of points in *either* the forward or reverse direction. The ⟨RM command has no effect on the vertical position saved by the ⟨PM command — it simply returns to the specified baseline. Once marked, the position can be returned to as many times as desired.

NOTE: The ⟨RM *command must immediately precede text (or either the Merge or Delay Lines command if a Stored Format is being used), with no intervening indenting or other commands. A Return to Mark is not stored information; it is immediately executed and then "forgotten." If any other instructions appear between it and text, the stored or automatic leading will be executed. Also, if a* ⟨CP *(Change Point Size) or a* ⟨CL *(Change Leading) command appears within the first line to be set following a Return to Mark, the stored or automatic leading will be executed unless the text is preceded with a* ⟨ZL *(Zero Leading) command.*

See also *Point Mark*, above, for use of this command.

SPECIAL NOTE: If a ⟨RM *command is issued and no* ⟨PM *for it to return to was specified within the take, a vertical return is made to the start of the take.*

POINT MAXIMUM

SUPERSHIFT	*Used in conjunction with the*
P	⟨RX *(Return Maximum) command.*
X	

This command is normally issued at the bottom of a column and is used to specify the maximum depth of a page of multi-column text.

The ⟨PX command marks the maximum depth of the column, wherever it is issued in a string of text. If a *previous* ⟨PX command has been issued, the new command compares its own vertical position with that of the previous command. If the current position is *greater* than the previous position, it is saved; otherwise, it is ignored.

TERMINATION NOTE: A new ⟨PX *command, if it is greater than the last, resets the Point Maximum at a new position, canceling the last position. Any Point Maximum previously set will be set to zero with a* ⟨ET *(End-of-Take) command.*

RETURN MAXIMUM

SUPERSHIFT R X	*Used in conjunction with the* ⟨PX *(Point Maximum) command.*

The maximum vertical position saved by the ⟨PX (Point Maximum) command is returned to immediately by leading the appropriate number of points in *either* the forward or reverse direction to that specified baseline.

INDENT COMMANDS

All indents may be used simultaneously. Timed indents (⟨IL, ⟨IR, ⟨SL, ⟨SR) from both margins may be specified only in a Stored Format.

INDENT TAKE

SUPERSHIFT
I
T
selected picas and/or points
of left and right indention,
separated by a comma
UNSUPERSHIFT

Left and right indentions will be in effect on the first line following the command. The comma must follow the left indention value and precede the right. If the comma is present, and only one value is given, the missing value is set at zero.

Example: Left and Right Indentions

A left indent of 3 picas, 6 points, and a right indent of 5 picas, can be specified as:

⟨IT3.6,5⟩

Example: Left Indention Only

A left indent of 16 points can be specified as:

⟨IT.16⟩

Any right indent currently in effect will be held unless specified as zero; if there is no right indent in effect, the value will be set at zero.

Example: Right Indention Only

A right indent of 4 picas, 8 points, can be specified as:

⟨IT0,4.8⟩

Any left indent currently in effect will be canceled; if there is no left indent in effect, the value will be set at zero.

NOTE: For the purposes of clarity and insurance that no indents are in effect which are not desired, it is strongly suggested that both left AND *right values always be stated, even if they are zero.*

TERMINATION NOTE: The ⟨IT *command can be replaced by another* ⟨IT *command or terminated by a* ⟨IT0,0⟩ *command or a* ⟨ET *(End-of-Take) command.*

INDENT FIRST LINE

SUPERSHIFT
I
F
selected picas and/or points
of left and right indention,
separated by a comma
UNSUPERSHIFT

The first line following a ⟨EP (End-of-Paragraph) command will be indented the specified amount(s). All succeeding lines will be set to the normal measure. The ⟨QL (Quad Left) command has no affect on this indent, and the following line will be set to the full measure.

The left and right indentions are specified in the same manner as those for the ⟨IT (Indent Take) command. The comma must follow the left indention value and precede the right.

TERMINATION NOTE: The ⟨IF *command can be replaced by another* ⟨IF *command or terminated by a* ⟨IF0,0⟩ *command or a* ⟨ET *(End-of-Take) command.*

INDENT HANG

SUPERSHIFT
I
H
selected picas and/or points
of left and right indention,
separated by a comma
UNSUPERSHIFT

The first line following an ⟨EP (End-of-Paragraph) command will be set to the full measure. All succeeding lines will be indented the specified amount(s). The ⟨QL (Quad Left) command has no affect on this indent, and the indent will be continued on the following line.

The left and right indentions are specified in the same manner as those for the ⟨IT (Indent Take) command. The comma must follow the left indention value and precede the right.

TERMINATION NOTE: The ⟨IH *command can be replaced by another* ⟨IH *command and terminated by a* ⟨XI *(Cancel Indent Hang) command or a* ⟨ET *(End-of-Take) command.*

INDENT PARAGRAPH

SUPERSHIFT
I
P
selected picas and/or points
of left and right indention,
separated by a comma
UNSUPERSHIFT

The paragraph following the command will be indented the specified amount(s). The ⟨IP command is in effect for one paragraph only or until it is canceled by the ⟨EP (End-of-Paragraph) command. The ⟨QL (Quad Left) command has no affect on this indent, and the indent will be continued on the following line.

The left and right indentions are specified in the same manner as those for the ⟨IT (Indent Take) command. The comma must follow the left indention value and precede the right.

TERMINATION NOTE: The ⟨IP command can be replaced by another ⟨IP command and terminated by a ⟨IP0,0⟩ command, a ⟨EP (End-of-Paragraph) command or a ⟨ET (End-of-Take) command.

INDENT TEXT

SUPERSHIFT
I
X

The distance from the left margin to the position where the ⟨IX command is placed will become the left margin indent for all subsequent lines, after quadding or justification of the line in which the command is entered has taken place. While the indent will be canceled by the ⟨EP (End-of-Paragraph) command, it is unaffected by the ⟨QL (Quad Left) command, and the indent will be continued on the following line.

TERMINATION NOTE: The ⟨IX command can be replaced by another ⟨IX command and terminated by a ⟨EP (End-of-Paragraph) command or a ⟨ET (End-of-Take) command.

SPECIAL NOTE: The ⟨EP (End-of-Paragraph) command will cause all indents (other than ⟨IP indents) to be restored to their values prior to the ⟨IX command.

CANCEL INDENT HANG

SUPERSHIFT
X
I

This command cancels only the ⟨IH (Indent Hang) command.

INDENT LEFT MARGIN

SUPERSHIFT
I
L
number of lines of indention
COMMA
amount of indent in picas and/or
points followed by another comma
if another pair is to follow
UNSUPERSHIFT

The ⟨IL command specifies the amount of indention from the left margin for the given number of lines. Up to five pairs of lines/indention values may be included in a single command. Each quadded or justified line counts as one; but extra, reverse or zero lead has no effect on the line count.

Commas must separate all numbers, whether they be specifying the number of lines or the indention value.

Example: One Pair of Line/Indention Values

The following command will indent each of the next 10 lines by 4 picas from the left margin.

⟨IL10,4⟩

Example: Two or More Pairs of Line/Indention Values

A simple runaround can be accomplished by specifying a zero indent (no value given) for the first 4 lines, and a 12 pica, 6 point indent for the next 9 lines:

⟨IL4,0,9,12.6⟩

The indent will be canceled by the last line indented and the full measure will be restored. More complex indent variations can be achieved by adding pairs of values (to a total of five).

TERMINATION NOTE: The ⟨IL *command can be replaced by another* ⟨IL *command. It will be terminated by the last line indented, by a* ⟨IL0⟩ *command or by a* ⟨ET *(End-of-Take) command.*

INDENT RIGHT MARGIN

SUPERSHIFT
I
R
number of lines of indention
COMMA
amount of indent in picas and/or
points followed by another comma
if another pair is to follow
UNSUPERSHIFT

The ⟨IR command specifies the amount of indention from the right margin for the given number of lines. Up to five pairs may be included in a single command. Each quadded or justified line counts as one; but extra, reverse or zero lead has no effect on the line count.

Commas must separate all numbers, whether they be specifying the number of lines or the indention value.

The command is the same as the ⟨IL command, *except* that the indent is from the right margin instead of the left. (Refer to examples under *Indent Left Margin*, above.)

TERMINATION NOTE: The ⟨IR *command can be replaced by another* ⟨IR *command. It will be terminated by the last line indented, by a* ⟨IR0⟩ *command, or by a* ⟨ET *(End-of-Take) command.*

SKEW LEFT

SUPERSHIFT
S
L
number of lines for skew
COMMA
maximum amount of skew indent
in picas and/or points
followed by another comma
if another pair is to follow
UNSUPERSHIFT

The amount of left margin indent will be divided equally over the specified number of lines in either of the following two ways:

1. If the line number is preceded by a *minus sign* (hyphen), the skew will begin with the maximum specified left indent and *decrease* to zero:

   ⟨SL-14,11⟩

   The result will be a skew that begins with a left indent of 11 picas, and evenly decreases to an indent of zero (the full measure) over 14 lines.

2. If the line number is *not* preceded by a minus sign (hyphen), the skew will begin with an indent of zero (the full measure), and evenly *increase* to the maximum specified left indent:

   ⟨SL14,11⟩

   The result will be a skew that begins with an indent of zero (the full measure), and evenly increases to a left indent of 11 picas over 14 lines.

The amount of indent variation from one line to the next is controlled by the number of lines specified. The larger the number of lines specified for an indention, the smaller the "step" of one line to the next will be; and, of course, the opposite is true of a smaller number of lines for the same indention value.

Up to five skew pairs may be included in the command for more complex skew formats.

TERMINATION NOTE: The entire ⟨SL *command will be terminated by a* ⟨SL0,0⟩ *command, another* ⟨SL *command stating new values or by a* ⟨ET *(End-of-Take) command.*

SKEW RIGHT

SUPERSHIFT
S
R
number of lines for skew
COMMA
maximum amount of skew indent
in picas and/or points
followed by another comma
if another pair is to follow
UNSUPERSHIFT

The amount of right margin indent will be divided equally over the specified number of lines in either of the following two ways:

1. If the line number is preceded by a *minus sign* (hyphen), the skew will begin with the maximum specified right indent and *decrease* to zero:

   ⟨SR-10,8.6⟩

   The result will be a skew that begins with a right indent of 8 picas, 6 points, and evenly decreases to an indent of zero (the full measure) over 10 lines.

2. If the number is *not* preceded by a minus sign (hyphen), the skew will begin with an indent of zero (the full measure), and evenly *increase* to the maximum specified right indent:

   ⟨SR10,8.6⟩

   The result will be a skew that begins with an indent of zero (the full measure), and evenly increases to a right indent of 8 picas, 6 points, over 10 lines.

The amount of indent variation from one line to the next is controlled by the number of lines specified. The larger the number of lines specified for an indention, the smaller the "step" of one line to the next will be; and, of course, the opposite is true of a smaller number of lines for the same indention value.

Up to five skew pairs may be included in the command for more complex skew formats.

TERMINATION NOTE: The entire ⟨SR *command will be terminated by a* ⟨SR0,0⟩ *command, another* ⟨SR *command stating new values or by a* ⟨ET *(End-of-Take) command.*

END-OF-PARAGRAPH

SUPERSHIFT
E OR SINGLE KEY
P

The ⟨EP command controls the various paragraph indents.

Paragraph Initialization

The ⟨EP command tells the typesetter that a new paragraph is beginning and that it should employ the ⟨IF (Indent First Line) and ⟨IH (Indent Hang) commands.

The text following the command will be considered the first line of a new paragraph; and if the text preceding the command has not been quadded, it will automatically be quadded left.

Indent Termination

The ⟨IP (Indent Paragraph) and ⟨IX (Indent Text) commands will be terminated by the ⟨EP command. If the text preceding the command has not been quadded, it will automatically be quadded left.

TABBING NOTE: Within the tab mode, the ⟨EP *command quads the line left but will not move the tab column counter to the next tab column. This allows one to continue setting within that particular column.*

RAGGED NOTE: Within the Ragged Mode, the ⟨EP *command, in addition to its normal function, will assume the characteristics of whichever ragged command is in effect. When terminating a Ragged Right command, it will cause the line to be quadded left; when Ragged Center is in effect, the line will be quadded center; and when Ragged Left is in effect, the line will be quadded right.*

FORMAT COMMANDS

STORE FORMAT

SUPERSHIFT
S
F
format number
between 1 and 250
UNSUPERSHIFT

The ⟨SF command is used for storing formats for future use. All characters following the command are treated as part of a Format Statement, until the ⟨EF (End Format) command is recognized, or until a ⟨UF (Use Format) command is encountered at the end of the Format Statement causing the same format or another format to be addressed.

FORMAT ENDING NOTE: The end of a Format Statement can be indicated by use of the ⟨EF *(End Format), or* ⟨UF *(Use Format) commands.*

SPECIAL NOTE: The command ⟨SF999⟩ *will cause all stored formats to be canceled, clearing the Format Table.*

USE FORMAT

SUPERSHIFT
U
F
format to be used — a
number between 1 and 250
UNSUPERSHIFT

The ⟨UF command will cause the typesetter to "use" the format stored with the ⟨SF command. The copy following the ⟨UF command will be set according to the commands and/or text in the Format Statement. The format used must be in memory; if it has not been previously stored, the command will be ignored and an Error Message to that effect will be issued at the end of the take.

TERMINATION NOTE: The format in use is terminated when another ⟨UF *command is encountered in either the format or the text stream — or when a* ⟨EF *(End Format) or* ⟨ET *(End-of-Take) command is recognized.*

MERGING NOTE: Upon receiving the ⟨UF *command, the typesetter processes the requested format up to the first* ⟨MC *(Merge Copy) command; then a transfer is made to the input copy stream.*

END FORMAT

SUPERSHIFT
E
F

This command terminates *both* the storing and execution of a Format Statement. The command can be used in either the format to terminate that format, or in a copy stream following a ⟨UF (Use Format) command to indicate that the format is no longer to be used.

SPECIAL NOTE: During the storing of a format, an internal End-of-Take code is generated by the ⟨EF *command.*

MERGE COPY

SUPERSHIFT
M OR SINGLE KEY
C

The ⟨MC command is used in both the stored format and the text tape. When it appears in the stored format, it indicates that the next character or command is to be taken from the text tape. When it appears in the text tape, it indicates that the next character or command is to be taken from the stored format. Through the use of the ⟨MC command, a constant interchange between the stored format and the text tape is therefore possible.

SPECIAL NOTE: The ⟨MC *command must follow a* ⟨UF *(Use Format) command on a text tape, or it will be ignored. The merge commands in the format and in the text tape must correspond; otherwise the text will be garbled.*

DELAY LINES

SUPERSHIFT
D
L
number of lines
selected for delay
UNSUPERSHIFT

The ⟨DL command is a line-counting command and may appear *only* in a Format Statement. In effect, this command says, "*Delay* further execution of the Stored Format until the indicated *number of lines* have been set from the text stream to the specifications in effect (preceding the command in the Stored Format)." After the specified number of lines have been set, a return (internal Merge) is made to the Format Statement for further instructions.

TERMINATION NOTE: The delay is terminated by a ⟨ET *(End-of-Take) command or by a* ⟨MC *(Merge Copy) command found in the text tape.*

SPECIAL NOTE: If a merge to the format is desired before the number of lines specified in the ⟨DL *command have been set, the Delay Lines should be set to zero —* ⟨DL⟩ *— immediately prior to the* ⟨MC *(Merge Copy) command in the text stream. This is the only instance where a* ⟨DL *command may appear in the text stream.*

A ⟨DL *command specifying a value in the text stream will be ignored.*

A ⟨RM *command or a* ⟨RV *(Reverse Lead) command* MAY NOT *immediately follow a Delay Lines command in a format: tabbing, a new tab-setting command, a leading command, a change in indents or any other desired command or sequence of commands must intervene — with the Return Mark or Reverse Leading being executed immediately prior to the merging of text.*

MISCELLANEOUS COMMANDS

END-OF-TAKE

SUPERSHIFT
E
T

Terminates and quads the line left. *All* formats and special-condition commands are terminated; the Installation Standard specifications are restored. The reader on the typesetter will stop at this command.

QUAD FROM MIDDLE

SUPERSHIFT
Q OR SINGLE KEY
M

This command is used in the interior of a line, effectively pushing out toward both margins from the point at which it is entered. Copy preceding the command will be set flush left; copy following the command will be set flush right. The line is terminated with any of the following commands: ⟨QL, ⟨QR, ⟨QC, ⟨EP, ⟨JU or ⟨ET.

OVERFLOW NOTE: If the flush-right copy results in an over-set line, the material will be broken (to justify the line), and the remaining copy will be set in accordance with the line ending command.

WITH LEADERS

SUPERSHIFT
W OR SINGLE KEY
L

Inserts leaders at the selected point in the line. The line must be terminated with a quadding or justifying command; if not, the command will be ignored.

NOTE: It is important that the reader consult Appendix H for a discussion of the effects of various terminators on lines containing the With Leaders or With Character commands.

WITH CHARACTER

SUPERSHIFT
W OR SINGLE KEY
X
selected character

The command is the same as the ⟨WL (With Leaders) command except that the character immediately following the command will be inserted in the line in place of leaders. The line must be terminated with a quadding or justifying command; if not, the command will be ignored.

NOTE: It is important that the reader consult Appendix H for a discussion of the effects of various terminators on lines containing the With Leaders or With Character commands. No intervening code is permitted between the ⟨WX command and the character to be inserted. The character to be inserted need not be followed by UNSUPERSHIFT.

CHANGE SET WIDTH

SUPERSHIFT
C
W
new set width size in
points and quarter points
UNSUPERSHIFT

This command changes the set width (escapement) to the degree specified for the entire type face and point size in use at the time the command is issued.

Example

To change the set width for the 12-point lens (normally 12), a command of ⟨CW13.1⟩ will make the width the equivalent of 13 1/4 point type — thereby *increasing* the white space between letters. If the command were ⟨CW10.3⟩, the width would be the equivalent of 10 3/4 point type — *decreasing* the white space between letters. Interword Spacing is also affected accordingly. The value entered in the command replaces the *actual* point size as a factor in computing the line. All other physical characteristics of the typeface remain unchanged.

The quarter points are expressed as:

xx.0 — even point size
xx.1 — one-quarter point size
xx.2 — one-half point size
xx.3 — three-quarter point size

TERMINATION NOTE: The temporary "set width" will be terminated when: another ⟨CW command is entered; the face or point size is changed; or a ⟨ET (End-of-Take) command is entered.

KERN CHARACTER

SUPERSHIFT
K
C
number of units
of kerning
UNSUPERSHIFT

The value entered will be subtracted from the relative unit width of the character which immediately follows. The command is effective for the next character only.

SPECIAL NOTE: If a quad code or a ⟨EP *or* ⟨ET *command is entered before the next character, the kern request is terminated.*

NO ESCAPEMENT

SUPERSHIFT
N
E

The character immediately following the command will be flashed, but no movement of the lens will occur. After flashing the character, the command is terminated and normal escapement is resumed.

NOTE: After the ⟨NE *command is issued, it will remain in effect until the first flashable character has been exposed.*

NO FLASH

SUPERSHIFT
N
F

All text following the command will use normal character escapement values, but no characters will be flashed until termination occurs.

TERMINATION NOTE: The ⟨NF *command will be terminated by a* ⟨XF *(Cancel No Flash) command or normal termination of the current line.*

CANCEL NO FLASH

SUPERSHIFT
X
F

Cancels a ⟨NF (No Flash) command and allows the characters to flash normally.

ENTER TEMPORARY DICTIONARY

SUPERSHIFT
E
D
word to be stored
in dictionary with
hyphenation points
indicated by hyphens
UNSUPERSHIFT

Stores the word (indicating its hyphenation points, or no hyphenation) in the Temporary Dictionary. This dictionary is for use one time only, for the current

job. It can hold 250 word characters (excluding hyphens) and will be scanned prior to the Permanent Dictionary.

Sample Command: ⟨EDDIC-TION-ARY⟩

TERMINATION NOTE: All words are removed from the Temporary Dictionary by the ⟨ET *(End-of-Take) command.*

ENTER PERMANENT DICTIONARY

SUPERSHIFT
P
E
word to be stored in
dictionary with hyphenation
points indicated by hyphens
UNSUPERSHIFT

Enters the command in the Permanent Dictionary, which will be scanned prior to the logical hyphenation routines.

Sample Command: ⟨PEPER-MA-NENT⟩

TERMINATION NOTE: All words, or a single word, can be removed from the Permanent Dictionary with the ⟨PD *(Delete Permanent Dictionary) command.*

DELETE WORD FROM PERMANENT DICTIONARY

SUPERSHIFT
P
D
word to be deleted
UNSUPERSHIFT

The indicated word will be deleted from the Permanent Dictionary. The following numeric code may be used with this command:

⟨PD2⟩ Lists all the words in the Permanent Dictionary on the output copy.

When used to delete a single word, the command will search the Permanent Dictionary for that word. If found, it is deleted from the dictionary. The word in the command must precisely match the word in the dictionary, but need not contain the hyphens. If the word cannot be found, an Error Message will be set.

CLEAR PERMANENT DICTIONARY

SUPERSHIFT
X
D
8
4
0
0
UNSUPERSHIFT

Will delete the Permanent Dictionary from the phototypesetter.

KILL WORD

SUPERSHIFT
K OR SINGLE KEY
W

The Kill Word command will eliminate a maximum of 64 characters up to the last spaceband, fixed space or line terminator (⟨QL, ⟨QR, ⟨QC, ⟨EP or ⟨JU). If there are *more* than 64 characters from the Kill Word command back to the last spaceband, fixed space, or line terminator, all characters back to, but not including, the 64th character will be eliminated.

If a word is incorrectly punched but has not yet been followed by a spacebar, a Kill Word command will delete the word. The typesetter will ignore all punched codes from the command back to, but not including, the previous spacebar. This command saves having to manually reverse the tape and punch multiple Rubout codes, but should be used with caution to avoid eliminating other commands keyboarded since the last spaceband, fixed space or line terminator.

ENTER STANDARD

See Section 9, page 177, *The Installation Standard.*

FORMAT STORAGE

See Appendix D, page 193, *The Format Storage Command.*

ERROR MESSAGES

Coding errors are automatically printed (by code numbers) at the end of the output copy. One Error Message will be printed for each error; i.e., if there are eight face number errors, there will be eight messages. Following are the definitions of the error message code numbers:

Code	Description
09	Command Code Error (Illegal Command Code)
10	Column Width Error, Standard Used
11	Face Number Error, Standard Used
13	Point Size Error, Standard Used
14	Maximum Spaceband Width less than Minimum Width
15	Format requested in "Use Format" not previously stored
16	Format Number Exceeds 250 in "Store Format"
17	Format Table Overflow, Format Ignored
19	Dictionary Overflow
20	Invalid Character in Permanent Dictionary Delete
21	Cannot locate word to be deleted in Permanent Dictionary

If the mneumonic (two characters) following SUPERSHIFT is illegal (a typo), these two characters will print following an ER09 message. If the SUPERSHIFT is *missing* from what was intended to be a command, no Error Message can be generated and the characters will be set within the take as text.

IMPORTANT NOTE: No Error Message will be printed until the ⟨ET *(End-of-Take) command is encountered. It is necessary to allow all takes to run to completion — through* ⟨ET *— in order to have all Error Messages print. It is good practice to terminate the storing of formats (even if they appear on the*

same tape as the text stream which uses them) with End-of-Take, so any command errors or overflow message will print out. This saves the operator from expending lots of time and materials in using formats which are ineffective. The same, of course, is true when word roots are being loaded into the Permanent Dictionary.

If it is desired to obtain a listing of Error Messages before the tape has run to completion, in instances where the operator knows that an error has been encountered near the beginning of the tape (from the sound of the typesetter), the following procedure may be followed to cause Error Message(s) to be printed: (1) press Computer STOP; (2) remove text tape; (3) insert a tape into the reader containing only the command ⟨ET — *all Error Messages will be printed; and (4) press STOP EOL, and remove the cassette for processing when the START indicator is no longer illuminated.*

SECTION 6

APPLICATION AND COMBINED USE OF COMMANDS IN KEYBOARDING

TYPESETTER CONTROL COMMANDS

INITIAL SPECIFICATIONS

The following rules must be adhered to in punching initial specifications (parameters) — *Column Width, Type Face, Point Size* and *Leading* — when they appear in series at the beginning of a tape or a section of a job:

- When any or all of the four initial specifications are punched together, they must be in this order:

  1. **Column Width** — specified in picas and/or points; a value in points is preceded by a decimal point.

  2. **Type Face** — specified by number . . . any of the four available font positions.

  3. **Point Size** — specified in points . . . any of the fifteen available sizes.

  4. **Leading** — specified in points and half-points (indicated by .5).

- Any of the above commands may be issued as single commands anywhere in the tape; but if they are punched in series, they *must be in order* to be recognized by the phototypesetter.

- A mistake made in the order of parameters constitutes an invalid command, and the phototypesetter will revert to the Installation Standard (please see *Section 9*).

- The first specification command in a series is defined by its appropriate two-letter code, although parameters which follow it need not be preceded by their letter codes. They must, however, be separated by commas.

- If a leading value is not given, automatic leading will be calculated by the computer. This is the only value which may be omitted from the series.

- If a command specifies an even pica value, then the period indicating an additional fractional value need not appear in the command.

NOTE ON INSTALLATION STANDARD: Within the phototypesetter are preset standard values for column measure, type face, and point size. These standards may be set to the installation's requirements. A command error in any of these functions reverts the incorrect command (or commands) to the user's present standard. See Section 9 for a complete discussion of the Installation Standard.

Examples: Specification Commands Both in Series and as Single Commands

The command codes are shown as capital letters. In practice, the letters may be either upper or lower case. *The commas separating the parameters must be included.*

	Command	Effect
⟨CC11,1,8,9⟩	Column Width:	11 picas
	Type Face:	1
	Point Size:	8 points
	Leading:	9 points
⟨CC16.9⟩	Column Width:	16 picas and 9 points
	Type Face:	Unchanged
	Point Size:	Unchanged
	Leading:	Unchanged
⟨CF2,12,14⟩	Column Width:	Unchanged
	Type Face:	2
	Point Size:	12 points
	Leading:	14 points
⟨CF3,12⟩	Column Width:	Unchanged
	Type Face:	3
	Point Size:	12 points
	Leading:	Automatic
⟨CF2⟩	Column Width:	Unchanged
	Type Face:	2
	Point Size:	Unchanged
	Leading:	Unchanged
⟨CP6,8⟩	Column Width:	Unchanged
	Type Face:	Unchanged
	Point Size:	6 points
	Leading:	8 points
⟨CP6⟩	Column Width:	Unchanged
	Type Face:	Unchanged
	Point Size:	6 points
	Leading:	Automatic
⟨CL18.5⟩	Column Width:	Unchanged
	Type Face:	Unchanged
	Point Size:	Unchanged
	Leading:	18½ points

DEFINITION OF A "TAKE": A Take, as referred to in this manual, is any body of copy with its own special formatting requirements, including: Typesetter Control Commands; Hyphenation and Letterspacing conditions; Tabbing conditions; Indentions; and the use of stored Format Statements. A Take can be all of a job, or only part of it, depending upon the copy's requirements and the way the operator desires to approach it. A Take is concluded with an ⟨ET *(End-of-Take) command, which cancels all special commands and returns the specifications to the Installation Standard.*

Example: Initial Specifications at the Beginning of a Take

The specifications for a galley of straight text paragraphs are: column width of 21 picas, Font 2, 11 point type, on a leading of 13 points. The text tape will be as follows:

⟨CC21,2,11,13⟩ ..... Enters initial specifications.
paragraph text
QUAD LEFT ..... Ends paragraph and quads last line left.
paragraph text
QUAD LEFT
paragraph text
⟨ET ..... Ends paragraph and quads the last line left; ends take and returns to Installation Standard. Also can end tape.

CHANGE COLUMN WIDTH

NOTE: Although below it is shown as possible, it is not *recommended for the Column Width to be changed within the take. The overall measure should be stated at the beginning of a take, and all adjustments to that overall measure should be made with indenting and tabbing commands.*

Example: Changing Measure Within a Take

A paragraph is being set with a column width of 16 picas. At a given point in the paragraph (governed by the logic of the copy), a change to a 12 pica width is desired. The Text Tape would be as follows:

paragraph text leading up
to change in column width,
with 16 pica measure in effect
⟨CC12⟩ ..... Changes column width effective with the line im-
conclusion of paragraph text mediately following the line in which the command is entered.
QUAD LEFT ..... Ends paragraph, quadding last line left.

The line being set when the command appears will be set to the original 16-pica measure, and the line immediately following that line ending point will begin the new measure. This demonstrates — though perhaps the example is uncommon — how the measure may be changed at any point in the middle of an unjustified text stream, even if the line ending point is unknown. In most cases, the measure would be changed at the beginning of a line or paragraph, following a quadding command or other line or paragraph ending command.

CHANGE FACE

Example: Changing Fonts Within a Take

The font may be changed *whenever desired.* Following is the command structure for italicizing words in the middle of a paragraph:

lightface text
⟨CF3⟩ ..... Changes to italic on Font 3.
italic word or words
⟨CF1⟩ ..... Returns to lightface on Font 1.
lightface text

CHANGE POINT SIZE

Example: Changing Type Size Within a Take

The type size may be changed *wherever desired.* However, it must be remembered that changing to a larger point size will activate the automatic leading. If a change in leading (automatic) is *not* desired, the Change Leading command in effect at the time of the size change must be reissued:

Since this is an unjustified text tape, the operator has no way of knowing where these 14-point words will appear in the line; and since it is not desired to change leading at this point, the leading command of 12 points *must* be reissued.

⟨**CC30,1,10,12**⟩ ..... paragraph text	Initial specifications at beginning of take: measure, 30 picas; Font 1; 10 point type; 12 points of lead.
⟨**CP14,12**⟩ ..... larger **SPACE BAR** point **SPACE BAR** size	Several words in the middle of a justifying line are set in 14 point. Since automatic leading is not desired, the 12 points of lead are respecified.
⟨**CP10,12**⟩ ..... **SPACE BAR** paragraph text continues	The original 10 point type is restored, and 12 point leading respecified.

Since this is an unjustified text tape, the operator has no way of knowing where these 14-point words will appear in the line; and since it is not desired to change leading at this point, the leading command of 12 points *must* be reissued.

AUTOMATIC LEADING NOTE: The automatic leading calculation can be chosen by the operator when he doesn't want to issue a Change Leading specification: he simply doesn't specify leading, or issues a ⟨KL *(Kill Change Leading) command. More importantly, this feature protects the operator from either piling type or overleading type when he changes type size and forgets to* specify a new leading which will accommodate the new size.

CHANGE LEADING

Example: Changing Leading Within a Take

The specifications for the current paragraph are: measure of 28 picas, lightface from Font 1, 10 point type, 12 points of leading. Without adding extra lead, the current paragraph will be followed by one paragraph with these specifications: same measure, italic from Font 3, 8 point type, 9½ points of lead. The previous specifications will then be restored and the text will continue. The measure is never changed from the original specification.

current paragraph text **QUAD LEFT**	Ends paragraph.
⟨**CF3,8,9.5**⟩ ..... eight point italic paragraph	Specifies Font 3 (italic), 8 point type, 9½ points of lead.
QUAD LEFT	Ends paragraph.
⟨**CF1,10,12**⟩ ..... balance of ten point text	Original specifications are restored.

IMPORTANT LEADING NOTE: A mistake in leading is perhaps the easiest for the operator of a phototypesetter to make. Therefore, always keep this thought in mind: "AT WHAT POINT WILL LEADING BE EXECUTED FOR THE LINE OR PARAGRAPH ENDING COMMAND CURRENTLY BEING ISSUED?" The answer to this question is, of course, that the stored leading will be executed in advance of setting the current line, the line ending point being determined automatically through justification OR by a line ending command issued at a known point. A NEW Change Leading command issued following the last line ending point will be used for a leading advance PRIOR to setting the NEXT line.

SPECIAL LEADING COMMANDS

ZERO LEADING

Example: Use of Zero Leading to Facilitate Multiple Quadding Commands in the Same Line

Tom Smith	**DIRECTORS**	Barry Jones
Stuart Marks	**VICE PRESIDENTS**	Fred Stafford

The names are to be set flush left and flush right in 10 point lightface (Font 1). The titles are to be set centered on the same baseline as the names in 10 point boldface (Font 2). The measure is 28 picas and the leading from baseline to baseline is 18 points. The text tape would be as follows:

⟨CC28,1,10,18⟩	Specifies 28 pica measure, lightface from Font 1, 10 point type, 18 points of lead (executed before line is set). Names are quadded from the middle.
Tom Smith	
⟨QM	
Barry Jones	
QUAD LEFT	Indicates the line ending point.
⟨ZL	Inhibits leading advance for the next "line."
⟨CF2⟩	Changes to boldface on Font 2 for title.
DIRECTORS	
QUAD CENTER	Centers title on line.
⟨CF1⟩	Font is changed to lightface, stored lead (18 points) is advanced, and the names are quadded from the middle, the Quad Left command indicating the end of the line.
Stuart Marks	
⟨QM	
Fred Stafford	
QUAD LEFT	
⟨ZL	Leading advance is inhibited, the font is changed to boldface, and the title is centered on the line. This procedure may be followed for all subsequent lines.
⟨CF2⟩	
VICE PRESIDENTS	
QUAD CENTER	

Since two quadding commands cannot be issued in the same line, what has been done, in effect, is to *superimpose* the Quad Center line on the Quad Middle line by not advancing lead.

NOTE: Be aware that the Zero Lead command is only INHIBITING the stored lead, not canceling it, for the line in which the ⟨ZL *command appears. If a* ⟨CL0⟩*command had been issued, as it might in special cases, the leading advance would be inhibited for that line; thereafter, automatic leading would be in effect.*

INCREMENT AUTOMATIC LEADING

Example: Use of Increment Automatic Leading in a Take

The automatic calculated leading is to be used in this take. However, more leading than it provides (solid: the same number of points as the type size) is uniformly desired. Here is a means of adding a slight value to that automatic calculation:

⟨CC30,1,11⟩	Specifies measure of 30 picas, Font 1, 11 point type. Leading has not been specified, so it will be automatic.
⟨IA.5⟩	The automatic leading is incremented by ½ point of lead.
text stream	

Then, later in the text, the automatic leading and Increment Automatic Leading are canceled by a Change Leading command:

text paragraph
QUAD LEFT ..... The current paragraph is terminated.
⟨CP6,7⟩ ..... The type size is changed to 6 point. A Change Leading specification of 7 points cancels the automatic leading and the ½ point increment.

NOTE: When the ⟨IA command is in effect, it will control the leading for all type sizes used.

KILL CHANGE LEADING

Example: Changing from Stored Leading to Automatic Leading in the Middle of a Take

A Change Leading command is in effect. The operator sees a number of size changes coming up in the copy and doesn't want to be constantly required to change leading specifications. Here is a possibility:

text paragraph
QUAD LEFT ..... The current paragraph is terminated.
⟨KL ..... The Change Leading command is canceled with the Kill Change Leading command, and the automatic leading is brought into effect for all subsequent copy.
text continues

Now the operator will be able to change type size at will, without having to worry about correct leading.

EXTRA LEADING

Example: Extra Leading Within a Take

The current paragraph is being set on 13 points of lead. Between this paragraph and the one followiing, 150 points of lead are to be added to leave space for an illustration.

current paragraph
QUAD LEFT ..... Terminates current paragraph.
⟨EL150⟩ ..... Advances 150 points of extra lead.
text continues with
stored 13 point leading

The execution of the ⟨EL command is immediate and only for the exact point at which it is issued. The command has no effect on the stored lead.

REVERSE LEADING

Example: Use of Reverse Leading to Set Several Words Opposite a Justified Column

Justified paragraph of text, justified paragraph of text. Justified paragraph of text.

Justified paragraph of text. Justified paragraph of text.

Justified paragraph of text. Justified paragraph of text, justified paragraph of text. Justified paragraph of text; justified paragraph of text. Justified paragraph of text.

Justified paragraph of text. Justified paragraph of text, justified paragraph of text. Justified paragraph of text.

◄ SPECIAL WORDS

The specifications of the justified column are: measure of 10 picas, lightface on Font 1, 7 point type, on 8½ points of lead. Upon completion of the justified column, it is necessary to reverse 68 points of lead to set the "pointer" symbol (Mathematical/Technical Font No. 2, on Font 4) and the "SPECIAL WORDS" (boldface on Font 2) in 18 point. The text tape would be as follows:

⟨CC27,1,7,8.5⟩	Specifies measure of 27 picas, Font 1, 7 point type, 8½ points of lead.
⟨IT0,17⟩	Establishes right indent of 17 picas.
justified column text	Set with appropriate paragraph ending commands.
⟨RV68⟩	Reverses 68 points of lead.
⟨CF4,18,0⟩	Changes to Font 4, 18 point type, and a leading specification of zero.*
⟨IT10.6,0⟩	Indents 10 picas and 6 points from left margin (see *Indent Commands*, page 97).
PI 5 THIN SPACE	The pointer symbol, a pi character, is accessed on Font 4. Following is a Thin Space to separate it from the words that follow.
⟨CF2⟩ SPECIAL WORDS	Changes to Font 2 to set "SPECIAL WORDS" in boldface.
QUAD LEFT	The line is terminated
⟨IT0⟩	The indent is canceled.

HYPHENATION AND JUSTIFICATION COMMANDS

INTERWORD SPACING

Example: Changing Interword Spacing for a Take

The operator wishes to change the standard values for Interword Spacing — 8,12,30: see Section 5 — to: Minimum Space, 4 units, Optimum Space, 8 units; and Maximum Space, 16 units. The procedure would be as follows:

⟨**CC17,1,9,11**⟩	Initial specifications are entered.
⟨**CS4,8,16**⟩ text	New values are entered for interword spacing which will override the standard values.
⟨**ET**	Ends the take. The new Interword Spacing value will remain as part of the Installation Standard.

Remember: This change is permanent. Normal values will have to be restored, if desired.

LETTERSPACING COMMANDS

Example: Canceling and Restoring Letterspacing

Letterspacing is not desired for a section of text with numerous ligatures, where it would be very unattractive. Justification will be achieved without letterspacing in this manner:

preceding text	Letterspacing is automatically in effect unless specifically canceled.
⟨**XL**	Letterspacing is canceled for the text which follows.
text ⟨**AL** following text	Letterspacing is allowed (restored) where desired. An End-of-Take command will also restore letterspacing.

*The Change Leading specification of zero will inhibit leading advance for this line only, since lead has already been reversed to the precise baseline where the words are to be set, and an additional execution of stored lead is not desired. The Change Leading command of zero will also cause automatic leading to be in effect after the line has been set.

HYPHENATION COMMANDS

ALLOW & CANCEL HYPHENATION

Example: Canceling and Restoring Hyphenation

Cancel and Allow Hyphenation are "blanket" commands, meant to be used over entire bodies of text — more often than not, for an entire take. With the understanding that canceling hyphenation may make justification more awkward*, it may be accomplished in this manner:

⟨XH cancels hyphenation for full paragraphs . . .⟨AH restores hyphenation

The ⟨XH command should *not* be used to cancel hyphenation of specific words, as this is not the command's function. The Temporary and Permanent Dictionaries should be used for this purpose, by storing words with *no* hyphens indicated.

NOTE: Please see the use of the Allow Hyphenation command with RAGGED COMMANDS, *below.*

DISCRETIONARY HYPHENATION

Example: Discretionary Hyphen Used to Indicate Hyphen Points

It may appear that with the exception dictionaries, this command is unnecessary. However, there are a number of words in the English language that have two distinct meanings, are pronounced and *hyphenated* differently for each meaning — but are *spelled* the same. In cases such as these, the exception dictionaries stored in the computer are unable to distinguish the difference between the two words, and the operator must indicate where they are to be hyphenated. Samples of such words are:

He will pre⟨**HH**sent the gift.

The pres⟨**HH**ent was late.

OR

She was an in⟨**HH**va⟨**HH**lid under her doctor's care.

How can one proceed on such an in⟨**HH**val⟨**HH**id premise?

If more than one Discretionary Hyphen point is indicated in a word, the one resulting in the tightest fit will be used.

A Discretionary Hyphen will always override a Cancel Hyphenation command.

NOTE: A word containing one or more Discretionary Hyphens will not be processed by the exception dictionaries.

RAGGED COPY COMMANDS

RAGGED LEFT, RAGGED RIGHT, RAGGED CENTER

Example: Ragged Copy With and Without Hyphenation

When the ⟨RL (Ragged Left), ⟨RR (Ragged Right), or the ⟨RC (Ragged Center) commands are issued, hyphenation (and letterspacing) is automatically canceled. Word spacing is the minimum stored value, and lines are broken at the last word space (or Discretionary Hyphen point) within the measure. This means that the line lengths may vary considerably, depending on the column width and the type size. A less ragged margin may be achieved by allowing hyphenation. Following are samples in which all three types of ragged copy are demonstrated, two with hyphenation and one without.

*The typesetter may have to resort to letterspacing (unless it is canceled also) and word spacing more often than if hyphenation were allowed.

It was a dark night, though the full moon rose as I left the enclosed lands and passed out upon the marshes. Beyond their dark line there was a ribbon of clear sky, hardly broad enough to hold the red large moon. In a few minutes she had ascended out of that clear field, in among the piled mountains of cloud.

There was a melancholy wind, and the marshes were very dismal. A stranger would have found them insupportable, and even to me they were so oppressive that I hesitated, half-inclined to go back. But I knew them well, and could have found my way on a far darker night, and had no excuse for returning, being there. So, having come there against my inclination, I went on against it.

The direction that I took was not that in which my old home lay, nor that in which we had pursued the convicts. My back was turned toward the distant hulks as I walked on, and though I could see the old lights away on the spits of sand, I saw them over my shoulder. I knew the limekiln as well as I knew the old battery, but they were miles apart, so that if a light had been burning at each point that night, there would have been a long strip of the blank horizon between the two bright specks.

—Charles Dickens, *GREAT EXPECTATIONS*

Specifications: measure of 30 picas, Font 1, 8 point type, 9 points of lead; 3 points of extra lead between paragraphs. The measure is never changed. The Ragged Right and Ragged Left paragraphs are 15 picas wide (with hyphenation), and the Ragged Center paragraph is 17 picas wide (without hyphenation). *As it happens, there is no hyphenation necessary in the particular copy above because the words are relatively short, but provision is made for hyphenation in the sample text tape which follows:*

Text Tape

⟨CC30,1,8,9⟩	Specifies 30 pica width, Font 1, 8 point type, 9 points of lead.
⟨IT0,15⟩	Indent of 15 picas from right margin leaves 15 picas in which to set paragraph.
⟨RR	Copy following will be set flush left/ragged right.
⟨AH	Hyphenation is allowed.
ragged right copy	
QUAD LEFT	Ends paragraph, quadding last line left.
⟨EL3⟩	Adds 3 points of extra lead.
⟨IT7.6,7.6⟩	Indent of 7 picas 6 points from both left and right margins leaves 15 picas for the Ragged Center paragraph.
⟨RC	Copy following will be set centered, ragged left/ragged right.
⟨ZL	Inhibits leading advance of first line of centered paragraph for the sake of appearance.
ragged center copy	
QUAD CENTER	Ends paragraph, quadding last line center.
⟨EL3⟩	Adds 3 points of extra lead.
⟨IT15,0⟩	Indent of 15 picas from left margin, right indent canceled, leaves 15 picas in which to set paragraph.
⟨RL	Copy following will be set ragged left/flush right.
⟨AH	Hyphenation is allowed.
ragged left copy	
QUAD RIGHT	Ends paragraph, quadding last line right.
⟨XR	Cancels ragged mode, restoring hyphenation and letterspacing.
copy to follow	

PARAGRAPH ENDING NOTE: Paragraphs in the ragged mode should be ended with the corresponding quad code: Quad Left for Ragged Right copy; Quad Center for Ragged Center copy; and Quad Right for Ragged Left copy.

INDENTING NOTE: All indenting commands, including skewing commands, may be used with ragged copy.

END OF LINE COMMANDS

QUAD LEFT

Example: Use of Quad Left to End a Line

line of text
QUAD LEFT ..... Terminates line and quads it left.
line of text
QUAD LEFT

This command is useful for setting flush left copy when the desired line endings are known.

Example: Use of Quad Left to End a Paragraph

When all that is wanted is to end a paragraph, and not to affect other stored commands (as *End-of-Paragraph* does), ⟨QL may be used. The use of the command in this manner is shown in numerous examples throughout this manual. The principle is simple: when copy preceding a Quad Left command overflows the measure, the copy filling the measure is set justified and the last line is set Quadded Left. Therefore, justified copy is simply Quad Left copy which overflows the measure for a number of lines.

QUAD RIGHT

Example: Use of Quad Right to End a Line

Quad Right is used in precisely the same manner as the Quad Left command to end a line. The copy preceding the ⟨QR command will be set flush right. If the copy overflows the measure, the copy filling the measure will be set justified, and the last line will be set flush right.

QUAD CENTER

Example: Use of Quad Center to End a Line

Quad Center is used in precisely the same manner as the Quad Left and Quad Right commands to end a line. The copy preceding the ⟨QC command will be set centered on the measure. If the copy overflows the measure, the copy will fill the measure to the last available word space or hyphenation point, and the last line will be set centered on the measure.

Example: Use of Quad Center to End a Paragraph

It is not unusual for certain special paragraphs to be set justified with the last line centered. This is common practice for photo captions. The copy overflow principle applies here when the paragraph is ended with the ⟨QC command, as in this sample:

JAGUAR XKE. Sleek and powerful, the Jaguar XKE is perhaps today's most successful convertible design in existence. It's also the kind of design that will be subject to much modification as the U.S. safety laws get stiffer. Since this British creation is primarily sold on this side of the Atlantic, that poses a sticky-wicket decision for British Leyland Motors, mother firm of Jaguar.

Text Tape

⟨**CC21.2,2,10,8**⟩ ..... Specifies measure of 21 picas 2 points, boldface on ten point lead-in words
Font 2, 10 point type, 8 points of lead.
⟨**CP8**⟩ ..... Point size is changed to 8.
balance of caption
QUAD CENTER ..... Centers the last line of the justified paragraph.

JUSTIFY LINE

Example: Force Justifying a Line

The only function that the ⟨JU command has is to force justify lines. When it is entered following a line of copy . . .

line of text to be force justified to the measure
⟨**JU**

. . . the ⟨JU command terminates the line, forces the copy to fill the measure. It is therefore useful in making single line corrections to a galley of copy, or in expanding a headline to fill a column measure.

NOTE: The ⟨JU command will always allow letterspacing. If letterspacing in a force justified line is not desired — for a heading, or other special effect — letterspacing must be canceled before the line is begun. Letterspacing may later be restored.

TABBING COMMANDS

NOTE ON FIGURE/THIN SPACE: In setting tabular matter, quite often the value of numbers, dollar signs, commas and decimals must be escaped. The FIGURE SPACE (in the unshift position) automatically assumes the value of the numbers on the particular font in use; dollar signs on most fonts are equal to numbers. The THIN SPACE (in the shift position) is equal to 9 units, or commas and periods on most fonts. Thus, one keystroke (again, on MOST fonts) will escape a number, a dollar sign, comma, or a decimal point.

TAB SETTING COMMANDS

TAB SET

Example: Tab Set Used to Set a Balance Sheet

CURRENT LIABILITIES:

Bank Loans	$16,230,000	$13,069,000
Accounts Payable	21,350,000	19,285,000
Supply and service contract obligations, etc.	22,751,000	21,426,000
U.S. Federal and foreign income taxes	10,010,000	13,743,000
Accrued taxes, commissions, payroll, etc.	17,584,000	16,951,000
Long-term debt due within one year	2,141,000	2,106,000
	$90,066,000	$86,580,000

In instances where a layout for the table has been prepared in advance of typesetting, or where the layout is a standard one like the one above, and the precise column widths are known, the ⟨TS command may be used to establish the individual column parameters.

Following is the way the above section of a balance sheet — with dollar amount columns for two different years — would be keyboarded.

Font Setup: Font 1 — Grenada (Book); Font 2 — Grenada Bold (Book); Font 3 — not used; Font 4 — any News Display font.

Remember: Leading is advanced prior to the line being set.

Text Tape

⟨CC28,2,10⟩	Specifies measure of 28 picas, boldface on Font 2, 10 point type, automatic lead.
SHIFT	
CURRENT LIABILITIES:	
UNSHIFT	
QUAD LEFT	The line is terminated.
⟨EL2⟩	Adds 2 points of extra lead.
⟨CF1,8,10⟩	Specifies lightface on Font 1 to set table, 8 point type, 10 points of lead.
⟨TS18,23⟩	Sets the right margin of the first column at 18 picas, and the right margin of the second column at 23 picas. The right margin of the third column is the 28 pica overall measure.
MARK TAB	Marks the first tab line, providing recognition for the ⟨TS command; advances stored lead (10 points).
EM SPACE	Em Space to inset line, followed by first column text.
Bank Loans	
SHIFT	Thin Space separates text from dot leaders.
THIN SPACE	
UNSHIFT	
WITH LEADERS	Fills balance of column with leaders.
QUAD LEFT	Ends first column.
$16,230,000	Second column text.
QUAD RIGHT	Sets text flush right; ends second column.
$13,069,000	Third column text.
QUAD RIGHT	Sets text flush right; ends third column of first tab line.
MARK TAB	Indicates a new tab line is beginning; advances stored lead. Second tab line is set in the same manner as the first, with leaders.
EM SPACE	
Accounts Payable	
SHIFT	
THIN SPACE	
UNSHIFT	
WITH LEADERS	
QUAD LEFT	Ends first column.
21,350,000	
QUAD RIGHT	Ends second column.
19,285,000	
QUAD RIGHT	Ends third column of second tab line.
MARK TAB	Marks the third tab line, which is set in the same manner.
EM SPACE	
Supply and service contract obligations, etc.	
SHIFT	
THIN SPACE	
UNSHIFT	
WITH LEADERS	
QUAD LEFT	
22,751,000	
QUAD RIGHT	
21,426,000	
QUAD RIGHT	
MARK TAB	Marks the fourth tab line, which is set in the same manner.
EM SPACE	
U.S. Federal and foreign income taxes	
SHIFT	
THIN SPACE	
UNSHIFT	
WITH LEADERS	
QUAD LEFT	
10,010,000	
QUAD RIGHT	
13,743,000	

QUAD RIGHT
MARK TAB ..... Marks the fifth tab line, which is set in the same
EM SPACE manner.
Accrued taxes, commissions, payroll, etc.
SHIFT
THIN SPACE
UNSHIFT
WITH LEADERS
QUAD LEFT
17,584,000
QUAD RIGHT
16,951,000
QUAD RIGHT
MARK TAB ..... Marks the sixth tab line, which is set in the same
EM SPACE manner.
Long-term debt due within one year
SHIFT
THIN SPACE
UNSHIFT
WITH LEADERS
QUAD LEFT
2,141,000
QUAD RIGHT
2,106,000
QUAD RIGHT ..... Ends third column of sixth tab line.
⟨**QT** ..... Quits the tab line to provide for a change in specifications.
⟨**CF4,8,3**⟩ ..... Changes to Font 4 for baseline rule; 8 point type respecified; 3 points of lead.
MARK TAB ..... Marks the seventh tab line and advances the 3 points of lead just specified.
QUAD LEFT ..... No text in first column: advances to second column.
SHIFT LOCK ..... Rule (underscore) for second column.
BASELINE RULE (11 times)
QUAD RIGHT ..... Sets rule flush right and ends second column.
BASELINE RULE (11 times) .... Rule for third column.
UNSHIFT
QUAD RIGHT ..... Sets rule flush right and ends third column of seventh tab line.
⟨**QT** ..... Quits the tab line to provide for a change in specifications.
⟨**CF1,8,10**⟩ ..... Returns to original specifications for body of table.
MARK TAB ..... Marks eighth tab line and advances 10 points of lead.
QUAD LEFT ..... No text in first column: advances to second column.
$90,066,000 ..... Second column text.
QUAD RIGHT ..... Sets text flush right and ends second column.
$86,580,000 ..... Third column text.
QUAD RIGHT ..... Sets text flush right and ends third column of eighth tab line.
⟨**QT** ..... Quits the tab line to provide for a change in specifications.
⟨**CF4,8,3**⟩ ..... Changes to specifications for baseline rule.
MARK TAB ..... Marks the ninth tab line and advances 3 points of lead.
QUAD LEFT ..... No text in first column: advances to second column.
SHIFT LOCK ..... Second column rule, set flush right.
BASELINE RULE (11 times)
QUAD RIGHT
BASELINE RULE (11 times) .... Third column rule.
UNSHIFT
QUAD RIGHT ..... Sets rule flush right and ends third column of ninth tab line.
⟨**QT** ..... Ends the tab line and terminates tab mode.
At this point extra lead
may be added, and justified

text may follow; or a new section of the balance sheet may follow with the Tab Set command recalled by use of the ⟨MA command.

⟨ET ..... End-of-Take command will terminate and quad the last line left, canceling all tabbing and special-condition commands.

Calculating the Length of an Underscore, Beneath Specific Characters

NOTE: This procedure is required only *when it is necessary to underscore specific characters, namely dollar amounts. Automatic rules may always be inserted into the measure, or into an area specified by indents or a tabular column.*

On most fonts, one en dash (baseline rule = 18 units) is equal in unit value to one number or dollar sign, or two commas or decimals. This will vary from font to font, and the Width Chart of the particular font being used should be consulted.

For instance, the numbers on the Grenada font being used in this example are worth 19 units. Following is how to calculate how many baseline rules are required for the underscore:

1. The largest numeric value to be underscored is: **$00,000,000.** With the dollar sign and figures on this particular font (Grenada) being worth 19 units, and the commas worth the normal 9 units, the total unit value of the dollar amount to be underscored is: **189 Units.**
2. Ten en dashes would have a total unit value of 180 (10 × 18 units = 180 units). This leaves an extra 9 units to be underscored, so an extra en dash is added. The total number (keystrokes) of en dashes to be used is then **11.**

STORED FORMAT NOTE: Use of a stored Format Statement in setting this table would greatly reduce the number of required keystrokes, since only text would have to be keyboarded. The total number of keystrokes required on the text tape above is 553, *including all text. Were a stored format used in setting the same job, this number would be reduced to* 387 keystrokes, *a savings of* 166 keystrokes, *or* over 30% *— one-third of the keyboarding time. On a practical basis, the savings in time would be even greater since the operator would be spending a minimum of time making value judgments regarding the layout of the table. See Section 7 for the use of Format Statements.*

TAB NUMBER

Example: Tab Number Used to Set an Income Summary

Working Interest		Sale of Properties		Total Income	
General Partners	Limited Partners	General Partners	Limited Partners	General Partners	Limited Partners
$ 457,641	$1,830,564	$ 212,647	$ 850,590	$ 670,288	$ 2,681,154
749,982	2,524,868	437,998	1,729,645	1,187,980	4,254,313
276,959	965,371	335,674	1,003,723	612,633	1,969,094
63,361	443,559	216,278	527,977	279,639	971,536
11,109	90,243	27,592	230,441	38,701	320,684
7,589	152,366	93,889	542,498	101,478	694,864
$1,566,641	$6,006,971	$1,324,078	$4,884,874	$2,890,719	$10,891,845

Where a specified number of equal columns is desired within a given measure, the ⟨TN command is extremely convenient. The column measure will be divided equally, to the nearest point, into the number of tab columns specified in the command.

In setting the table above, the following fonts are loaded: Font 1—lightface (Book); Font 2—boldface (Book); Font 3—unused; Font 4—any News Display font. Note that the stored lead in the Initial Specifications is never changed.

Text Tape

⟨CC30,2,8,9⟩	Specifies measure of 30 picas, boldface on Font 2 for heads, 8 point type, 9 points of lead.
FEED (about 6″)	See "Feed Note" at end of this example.
⟨TN3⟩	Specifies 3 columns. Each will be 10 picas wide.
MARK TAB	Marks the first tab line, providing recognition for the ⟨TN command.
EM SPACE	See "Fixed Space Note" at end of this example.
EM SPACE	
SHIFT	
⟨KC4⟩	
EN SPACE	
Working Interest	First column head.
QUAD CENTER	Centers head and advances to second column.
EM SPACE	See "Fixed Space Note."
EM SPACE	
SHIFT	
⟨KC4⟩	
EN SPACE	
Sale of Properties	Second column head.
QUAD CENTER	Centers head and advances to third column.
EM SPACE	See "Fixed Space Note."
EM SPACE	
SHIFT	
⟨KC4⟩	
EN SPACE	
Total Income	Third column head.
QUAD CENTER	Centers head and advances to end of tab line.
⟨QT	Terminates tab line; quits tab mode to provide for a change in specifications.
⟨EL4⟩	Executes 4 points of extra lead.
⟨TN6⟩	Specifies 6 columns. Each will be 5 picas wide.
MARK TAB	Marks the tab line, providing recognition for the ⟨TN command.
EM SPACE	See "Fixed Space Note."
EM SPACE	
SHIFT	
⟨KC4⟩	
EN SPACE	
General	First column head.
QUAD CENTER	Centers head and advances to second column.
EM SPACE	Second column head set in same manner, preceded by fixed space.
EM SPACE	
SHIFT	
⟨KC4⟩	
EN SPACE	
Limited	
QUAD CENTER	
EM SPACE	Third column head set in same manner, preceded by fixed space.
EM SPACE	
SHIFT	
⟨KC4⟩	
EN SPACE	
General	
QUAD CENTER	
EM SPACE	Fourth column head set in same manner, preceded by fixed space.
EM SPACE	
SHIFT	

⟨KC4⟩	
EN SPACE	
Limited	
QUAD CENTER	
EM SPACE	Fifth column head set in same manner, preceded by
EM SPACE	fixed space.
SHIFT	
⟨KC4⟩	
EN SPACE	
General	
QUAD CENTER	
EM SPACE	Sixth column head set in same manner, preceded by
EM SPACE	fixed space.
SHIFT	
⟨KC4⟩	
EN SPACE	
Limited	
QUAD CENTER	Centers sixth column head of first tab line of individual column heads.
MARK TAB	Marks second tab line of heads, advancing stored lead.
EM SPACE	REPEATED SIX TIMES for second line of individual column heads. Note that each column head is again preceded by fixed space.
EM SPACE	
SHIFT	
⟨KC4⟩	
EN SPACE	
Partners	
QUAD CENTER	
⟨**QT**	Terminates tab line; quits tab mode to provide for a change in specifications.
⟨**EL3**⟩	Executes 3 points of extra lead.
⟨**ZL**	Specifies zero lead, so stored lead will not be executed for baseline rule.
⟨**CF4**⟩	Changes to Font 4 for baseline rule.
EM SPACE	Baseline rule is inset with fixed space.
EM SPACE	
SHIFT	
⟨KC4⟩	
EN SPACE	
WITH CHARACTER	Sets baseline rule.
BASELINE RULE	
UNSHIFT	
QUAD LEFT	Terminates line.
⟨**EL3**⟩	Executes 3 points of extra lead.
⟨**CF1**⟩	Changes to Font 1 (lightface) for body of table.
MARK TAB	Marks first tab line; the ⟨TN6⟩ command is recalled.
$	First column text. Figure Space escapes missing number; Thin Space escapes missing comma.
FIGURE SPACE	
SHIFT	
THIN SPACE	
UNSHIFT	
457,641	
QUAD RIGHT	Sets text flush right and ends first column.
$1,830,564	Second column text.
QUAD RIGHT	Sets text flush right and ends second column.
$	Third column text. Figure Space escapes missing number; Thin Space escapes missing comma.
FIGURE SPACE	
SHIFT	
THIN SPACE	
UNSHIFT	
212,647	
QUAD RIGHT	Sets text flush right and ends third column.
$	Fourth column text. Figure Space escapes missing number; Thin Space escapes missing comma.
FIGURE SPACE	

SHIFT
THIN SPACE
UNSHIFT
850,590
QUAD RIGHT ..... Sets text flush right and ends fourth column.
$ ..... Fifth column text. Figure Space escapes missing number; Thin Space escapes missing comma.
FIGURE SPACE
SHIFT
THIN SPACE
UNSHIFT
670,288
QUAD RIGHT ..... Sets text flush right and ends fifth column.
$ ..... Sixth column text. Figure Space escapes missing number.
FIGURE SPACE
2,681,154
QUAD RIGHT ..... Sets text flush right and ends sixth column of first tab line.
MARK TAB ..... Terminates line and marks the second tab line of text.

The second, third, fourth, fifth and sixth tab lines of text are set in the same manner [⟨QR and ⟨MA indicate single-key commands]:

749,982⟨**QR**2,524,868⟨**QR**437,998⟨**QR**1,729,645⟨**QR**1,187,980⟨**QR**4,254,313⟨**QR**⟨**MA**
276,959⟨**QR**965,371⟨**QR**335,674⟨**QR**1,003,723⟨**QR**612,633⟨**QR**1,969,094⟨**QR**⟨**MA**
63,361⟨**QR**443,559⟨**QR**216,278⟨**QR**527,977⟨**QR**279,639⟨**QR**971,536⟨**QR**⟨**MA**
11,109⟨**QR**90,243⟨**QR**27,592⟨**QR**230,441⟨**QR**38,701⟨**QR**320,684⟨**QR**⟨**MA**
7,589⟨**QR**152,366⟨**QR**93,889⟨**QR**542,498⟨**QR**101,478⟨**QR**694,864
QUAD RIGHT ..... Ends sixth column of sixth tab line of text.
⟨**QT** ..... Terminates tab line; quits tab mode to provide for a change in specifications.
⟨**EL3**⟩ ..... Executes 3 points of extra lead.
⟨**CF4**⟩ ..... Changes to Font 4 to set baseline rule segments.
⟨**ZL** ..... Specifies zero lead, so stored lead will not be executed.
MARK TAB ..... Begins new tab line (no lead will be advanced).
SHIFT LOCK ..... Sets baseline rule segments flush right in each of the six columns.
BASELINE RULE (10 times)
QUAD RIGHT
BASELINE RULE (10 times)
QUAD RIGHT
BASELINE RULE (10 times)
QUAD RIGHT
BASELINE RULE (10 times)
QUAD RIGHT
BASELINE RULE (10 times)
QUAD RIGHT
BASELINE RULE (11 times)
QUAD RIGHT
UNSHIFT
⟨**QT** ..... Terminates tab line; quits tab mode to provide for a change in specifications.
⟨**EL3**⟩ ..... Executes 3 points of extra lead.
⟨**CF1**⟩ ..... Changes to Font 1 (lightface).
MARK TAB ..... Begins new tab line, advancing stored lead.
$1,566,641 ..... Totals are set flush right in each of the six columns.
QUAD RIGHT
$6,006,971
QUAD RIGHT
$1,324,078
QUAD RIGHT
$4,884,874
QUAD RIGHT
$2,890,719
QUAD RIGHT
$10,891,845
QUAD RIGHT

⟨QT	Terminates tab line; quits tab mode to provide for a change in specifications.
⟨EL3⟩	Executes 3 points of extra lead.
⟨CF4⟩	Changes to Font 4 to set baseline rule segments.
⟨ZL	Specifies zero lead, so stored lead will not be executed.
MARK TAB	Begins new tab line (no lead will be advanced).
SHIFT LOCK	Sets baseline rule segments flush right in each of the six columns.
BASELINE RULE (10 times)	
QUAD RIGHT	
BASELINE RULE (10 times)	
QUAD RIGHT	
BASELINE RULE (10 times)	
QUAD RIGHT	
BASELINE RULE (10 times)	
QUAD RIGHT	
BASELINE RULE (10 times)	
QUAD RIGHT	
BASELINE RULE (11 times)	
QUAD RIGHT	
⟨QT	Terminates tab line; quits tab mode to provide for a change in specifications.
⟨EL3⟩	Executes 3 points of extra lead.
⟨ZL	Inhibits execution of stored lead.
MARK TAB	Begins new tab line (no lead will be advanced).
BASELINE RULE (10 times)	Sets baseline rule segments flush right in each of the six columns, providing the double-rule.
QUAD RIGHT	
BASELINE RULE (10 times)	
QUAD RIGHT	
BASELINE RULE (10 times)	
QUAD RIGHT	
BASELINE RULE (10 times)	
QUAD RIGHT	
BASELINE RULE (10 times)	
QUAD RIGHT	
BASELINE RULE (11 times)	
QUAD RIGHT	
⟨ET	Terminates tab line; cancels all tabs; cancels all specifications; ends take.

FIXED SPACE NOTE: It has been previously determined in laying out this table that, with the given measure and point size, the space remaining to the left of the flush right figures in each column (gutter space) is precisely 19 points. Since the figure columns are set flush right in the column, it is necessary to account for this 19 points of space when centering the heads. The heads must be centered over the figures, not over the entire column.

Refer to Appendix A: for 8 point type, 19 points are equal to 86 units. Fixed space values are combined to arrive at this unit value: hence, the fixed space coding in the above example, in which kerning is used to adjust the unit values. If the point size is changed, these fixed space values will increase or decrease proportionately.

FEED NOTE: The Tab Number commands in this example may be used with any measure, point size or leading. If the point size is too large for the columns to fit within the specified measure, the measure may be increased or the point size decreased without affecting the rest of the text tape. The feed following the Initial Specifications allows the operator to reinsert the tape in the perforator, rubout the existing specifications, and punch new ones. However, if the type size is changed by more than one point size in either direction, the Extra Leading commands preceding the baseline rule underscores may have to be changed.

For example, the Initial Specifications preceding the tape feed at the beginning of the above tape were replaced with the these: ⟨CC20.4,2,6,7.5⟩. *The balance of the tape remained unchanged, and the results follow:*

Working Interest		Sale of Properties		Total Income	
General Partners	Limited Partners	General Partners	Limited Partners	General Partners	Limited Partners
$ 457,641	$1,830,564	$ 212,647	$ 850,590	$ 670,288	$ 2,681,154
749,982	2,524,868	437,998	1,729,645	1,187,980	4,254,313
276,959	965,371	335,674	1,003,723	612,633	1,969,094
63,361	443,559	216,278	527,977	279,639	971,536
11,109	90,243	27,592	230,441	38,701	320,684
7,589	152,366	93,889	542,498	101,478	694,864
$1,566,641	$6,006,971	$1,324,078	$4,884,874	$2,890,719	$10,891,845

TAB PROPORTION

Example: Tab Proportion Used to Set a Helicopter Schedule

7:07	7:17	EX SA	413	NON STOP
7:52	8:14	DAILY	423	ONE STOP
8:37	8:59	EX SA	433	ONE STOP
10:52	11:14	DAILY	453	NON STOP
12:25	12:47	EX SA	463	NON STOP
1:20	1:42	DAILY	473	ONE STOP
3:30	3:42	EX SA	503	ONE STOP
4:05	4:27	DAILY	513	ONE STOP
6:45	7:07	DAILY	533	NON STOP

The ⟨TP command allows the operator to set a number of *unequal* columns within a specified measure. From the proportions specified in the command, the computer will calculate the column widths to the nearest point. Therefore, the same Tab Proportion command may be used with a variety of measures and point sizes just as in the preceding Tab Number example, providing that the type size selected will fit in the measure.

In this example, the measure is 19 picas and the Tab Proportion command is ⟨**TP3,3,1,4,2,6**⟩. In this case, six proportions are required for five columns. The first two proportions in the command are for the departure and arrival times; the third is for the gutter space between the 2nd and 3rd columns (This is a "dummy" column: a flush right column against a flush left column provides no gutter space.); the fourth proportion is for the frequency column; the fifth for the flight number; and the sixth proportion is for the "stops" column.

Having established the proportions of the schedule — ⟨**TP3,3,1,4,2,6**⟩ — the exact widths of the six columns (including the "dummy" column), within a measure of 19 picas, may be calculated . . .

1. The column measure is divided by the sum of the proportional values:

   $3 + 3 + 1 + 4 + 2 + 6 = 19 \qquad 19 \div 19 = 1$

2. The resulting quotient is multiplied by each proportional value selected for the tab column-widths:

   $3 \times 1 = 3 \qquad 3 \times 1 = 3 \qquad 1 \times 1 = 1$

   $4 \times 1 = 4 \qquad 2 \times 1 = 2 \qquad 6 \times 1 = 6$

3. The six resulting tab columns have widths of 3, 3, 1 ("dummy"), 4, 2 and 6 picas, respectively.

The first and second columns are set flush right (Quad Right), the third column is tabbed over (any quadding command), the fourth column is flush left (Quad Left), the fifth column is set centered (Quad Center), and the sixth column is flush right.

The following fonts (Book or News Display) are loaded: Font 1 — lightface; Font 2 — boldface (for night flights); Fonts 3 and 4 are not used.

NOTE: Since the first column is set flush right, the overall width of the table is slightly less than 19 picas.

Text Tape

⟨**CC19,1,10,13**⟩	Specifies measure of 19 picas, Font 1, 10 point type, 13 points of lead.
FEED (about 6″)	So Initial Specifications may be changed, if necessary.
⟨**TP3,3,1,4,2,6**⟩	Sets tab column proportions.
MARK TAB	Provides recognition for the ⟨TP command and marks first tab line.
7:07	First column text.
QUAD RIGHT	Sets text flush right and ends first column.
7:17	Second column text.
QUAD RIGHT	Sets text flush right and ends second column.
QUAD RIGHT	Tabs over third column.
EX SA	Fourth column text.
QUAD LEFT	Sets text flush left and tabs to fifth column.
413	Fifth column text.
QUAD CENTER	Sets text centered and ends fifth column.
NON STOP	Sixth column text.
QUAD RIGHT	Sets text flush right and ends sixth column of first tab line.
This procedure is repeated for each subsequent line, the ⟨MA single-key command providing leading advance and marking each new tab line.	
⟨**ET**	Quads the last line left, advances lead, and cancels tabs.

FEED NOTE: The Tab Proportion command in this example may be used with any measure, point size or leading. The same tape from the feed to the end may be used to set the table 10 picas wide with 6 point type, or 47 picas wide with 22 point type. The feed following the Initial Specifications allows the operator to reinsert the tape in the perforator, rubout the existing specifications, and punch new ones, or the new specifications may be punched on a separate tape.

For example, the Initial Specifications preceding the feed at the beginning of the above tape were replaced with these: ⟨**CC42,1,24,25**⟩. The balance of the tape remained unchanged, and the results follow:

7:07	7:17	EX SA	413	NON STOP
7:52	8:14	DAILY	423	ONE STOP
8:37	8:59	EX SA	433	ONE STOP
10:52	11:14	DAILY	453	NON STOP
12:25	12:47	EX SA	463	NON STOP
1:20	1:42	DAILY	473	ONE STOP
3:30	3:42	EX SA	503	ONE STOP
4:05	4:27	DAILY	513	ONE STOP
6:45	7:07	DAILY	533	NON STOP

TAB TEXT

Example: Tab Text Used to Set Columns on a Quadded Line

Moose MacFarland	Chairman of the Board	60,000 shares
Harry Harbinger	President & Director	48,000 shares
Dallas Perriwig	Vice President & Director	32,000 shares
Carstairs Krumpft	Vice President & Director	28,500 shares
Bonita Bonaface	Director	15,025 shares
Phoenicia Phormat	Charlady	100,000 shares

The ⟨TT command is used to set tabs equal to a group of characters and/or fixed spaces, regardless of their width in picas and points in the face and point size in use. The column is entered at the end of the space escaped by a word or words — the current position in a line of copy — instead of being specified to a pica width. Wherever the command is entered becomes a division between columns.

In setting the sample above, the tab-columns are specified by escaping (not flashing) the group of words with the greatest estimated length in each column, plus a fixed gutter space. The use of the Tab Text command saves the operator from having to test columns for width in advance of setting the table. The final result is a table which is perfectly symmetrical, though not necessarily an even pica width. Note that the measure should be overestimated in the Initial Specifications, to definitely be able to accommodate all of the line.

The only face used in setting this example is: Font 1 — lightface (Book).

Application and Combined Use of Commands in Keyboarding

Text Tape

⟨CC30,1,10,15⟩	Specifies maximum measure of 30 picas, Font 1, 10 point type, 15 points of lead.
⟨ZL	Zero Lead will allow lens carrier to escape to set tabs, without advancing the stored lead.
⟨NF	No Flash allows escaping without exposing photo paper, in order to establish the ⟨TT command.
Moose MacFarland	Estimated to be longest copy in first column.
EM SPACE	Gutter space.
EM SPACE	
⟨TT	Indicates end of first column.
Vice President & Director	Estimated to be longest copy in second column.
EM SPACE	Gutter space.
EM SPACE	
⟨TT	Indicates end of second column. No tab needs to be set for the end of the third column, since it will be set Quad Left on the overall measure.
QUAD LEFT	Quads the line used for setting the tabs left, without advancing lead (for this line only).
MARK TAB	Marks first tab line (provides recognition for the tabs just set).
⟨XF	Restores normal flashing of characters.
Moose MacFarland	First column copy.
QUAD LEFT	Sets copy flush left, ends first column and advances to second column.
Chairman of the Board	Second column copy.
QUAD LEFT	Ends second column and advances to third column.
FIGURE SPACE	Third column copy. Figure Space escapes missing
60,000 shares	number.
MARK TAB	Quads the third column—and the line—left and marks second tab line.
Harry Harbinger	Second tab line set in same manner.
QUAD LEFT	
President & Director	
QUAD LEFT	
FIGURE SPACE	
48,000 shares	
MARK TAB	Each of the tab lines to follow is set in the same
Third tab line copy	manner.
MARK TAB	
Fourth tab line copy	
MARK TAB	
Fifth tab line copy	
MARK TAB	
Sixth tab line copy	
⟨QT	Quads the last column left and terminates the tab line.
⟨XT	Cancels all tabs, allowing straight matter to be set.
straight text matter	
⟨ET	End-of-Take command cancels all special commands and ends the take.

NOTE: The third column could have been set Quad Right, instead of Quad Left, in which case the Figure Space would be eliminated and the ⟨QR *inserted before the* ⟨MA *command. However, by setting the third column Quad Left (the line is automatically quadded left by the* ⟨MA *command), it is not necessary to specify the right margin of the third column with a third* ⟨TT *command.*

Application and Combined Use of Commands in Keyboarding

Example: Tab Text Used to Set Columns on a Force Justified Line

The First Boston Corporation

Blyth Eastman Dillon & Co. Incorporated — Alex. Brown & Sons — Drexel Burnham & Co. Incorporated — duPont Glore Forgan Incorporated

Goldman, Sachs & Co. — Halsey, Stuart & Co. Inc. — Hornblower & Weeks-Hemphill, Noyes Incorporated

Kidder, Peabody & Co. Incorporated — Kuhn, Loeb & Co. — Lazard Freres & Co. — Lehman Brothers Incorporated

Loeb, Rhoades & Co. — Merrill Lynch, Pierce, Fenner & Smith Incorporated — Paine, Webber, Jackson & Curtis Incorporated

Salomon Brothers — Smith, Barney & Co. Incorporated — Stone & Webster Securities Corporation

Wertheim & Co., Inc. — White, Weld & Co. Incorporated — Dean Witter & Co. Incorporated

E. F. Hutton & Company Inc. — Reynolds Securities Inc. — Shearson, Hammill & Co. Incorporated

Legg, Mason & Co., Inc. — Baker, Watts & Co. — Robert Garrett & Sons Incorporated

Shuman, Agnew & Co., Inc.

The Tab Text command used in conjunction with the Force Justify command is useful in solving problems like the one above, where *every line requires a different set of tabular columns* to facilitate the centering of the word "Incorporated" under the appropriate company names of underwriters and registered dealers of securities.

1. The spacebars that would normally divide the words in a company name are replaced with Thin Spaces, thereby creating a single word.
2. Spacebars are inserted between company names, with the Tab Text command being introduced at the beginning and end of each "company word," creating a column that may be returned to on the next line, within which column the word "Incorporated" will be centered.
3. The line is then force justified, achieving even spaces between the "company words."

The only face used is boldface (Book) on Font 2.

Text Tape
(The characters "/T/" between words indicate Thin Space in the Shift position).

⟨**CC40,2,10,12**⟩ ..... Specifies measure of 40 picas, Font 2, 10 point type, 12 points of lead.

⟨**XL** ..... Letterspacing is canceled, to insure that space will be inserted in the line *only* where spacebars appear.

The/T/First/T/Boston/T/Corporation

QUAD CENTER ..... Centers company name on the 40 pica measure.

⟨**EL7**⟩ ..... Adds 7 points of extra lead, allowing for the fact that the word "Incorporated" does not appear below this name.

Blyth/T/Eastman/T/Dillon/T/&/T/Co.

⟨**TT** ..... Sets a tab at the end of the company name, creating a column from the left margin to this point in the line.

SPACE BAR ..... Becomes an expansion point for force justification.

Alex./T/Brown/T/&/T/Sons

SPACE BAR ..... No tabs set surrounding this second company name, because it does not require the word "Incoporated" to be centered below it.

⟨**TT** ..... Sets a tab at the beginning of the third company name.

Drexel/T/Burnham/T/&/T/Co.	
⟨**TT**	Sets a tab at the end of the company name, making this the third column from the left margin.
SPACE BAR	Becomes an expansion point for force justification.
⟨**TT**	Sets a tab at the beginning of the fourth, and last, company name. The spacebar above becomes the fourth column (gutter space).
duPont/T/Glore/T/Forgan	Becomes the fifth column, which ends at the right margin of the overall measure of 40 picas.
⟨**JU**	Force justifies the line, the previously indicated tabs assuming their proper positions along the justified line.

What we have done to this point, is establish 5 columns while actually setting a justified line: COLUMN 1 — from the left margin to the end of the first company name; COLUMN 2 — will be a blank column from the end of the first company name to the beginning of the third company name; COLUMN 3 — the third company name; COLUMN 4 — a "dummy" column (gutter space) created by the spacebar between the third and fourth company names; and COLUMN 5 — extending from the beginning of the fourth company name to the end of the 40 pica measure. Now, to utilize the tabs that have just been set, the text tape continues:

⟨**CP6,7**⟩	Changes the specifications to 6 point type on 7 points of lead.
MARK TAB	Provides recognition for the tabs just set and begins the tab line, leading the specified 7 points.
Incorporated	Centers word in Column 1.
QUAD CENTER	
QUAD CENTER	Tabs over Column 2, which is blank.
Incorporated	Centers word in Column 3.
QUAD CENTER	
QUAD CENTER	Tabs over Column 4, which is blank.
Incorporated	Centers word in Column 5.
QUAD CENTER	
⟨**QT**	Terminates the tab line.
⟨**XT**	Cancels the tabs, so that new ones may be set on the next line; otherwise, the tabs would be cumulative.
⟨**CP10,12**⟩	Restores 10 point type and 12 points of lead to set the next line of company names.

The process is then repeated for each line of company names: setting tabs *surrounding* any company name requiring the word "Incorporated" centered beneath it, and keeping track of the number of columns (not necessarily the number of company names) specified on the line so they may be used properly when the line is marked for tabbing.

NOTE: Many interesting and useful effects may also be achieved by specifying tabular columns (with Tab Text) in relation to text set Quad Center or Quad Right on the line.

MISCELLANEOUS TABBING COMMANDS

MARK BEGINNING TAB

For use of the ⟨MA command, please see the examples under: *Tab Set*, page 81; *Tab Number*, page 84; *Tab Proportion*, page 89; and *Tab Text*, page 91.

QUIT TAB LINE

For use of the ⟨QT command, please see the examples under: *Tab Set*, page 81; *Tab Number*, page 84; and *Tab Text*, page 91.

CANCEL TABS

For use of the ⟨XT command, please see the end of the example under *Tab Text*, page 91.

VERTICAL CONTROL COMMANDS

POINT MARK / RETURN MARK

The ⟨PM (Point Mark) command may be entered at any point in a column of copy; normally it would be entered on the first line of a column. The position "saved" by the Point Mark may be returned to—by use of the ⟨RM (Return Mark) command—as many times as desired, for the purpose of setting copy parallel to a completed column of type.

Hyphenation is accomplished basically by rules of logic. As you know, however, the English language contains a number of words which defy these rules. We have recognized this problem and provided our phototypesetter with the storage capability for an exception dictionary which you establish and add to, or delete from, as desired. You can specify any hyphenation or none at all.

An expandable capacity for format storage is another addition to this already powerful phototypesetter. Complex tabular material and often repeated formats are no problem. Total keyboarding time and errors are held to a minimum when all you have to put on the text tape is simple text. A total of 250 formats can be stored at one time, providing optimum flexibility.

The same two columns of copy may be set in two different ways, with the same end result, as shown in the examples below.

Example 1: Point Mark and Return Mark used with Left and Right Indents to Set Two Parallel Columns

Each of the columns is to be 12½ picas wide, with 1½ picas of gutter space between them. The total measure of 26½ picas (12½ + 12½ + 1½ = 26½) never changes. The first column is set with a right indent of 14 picas (12½ + 1½ = 14), and the second column is set with a left indent of 14 picas.

Text Tape

⟨CC26.6,3,9,11⟩	Specifies measure of 26 picas 6 points, Font 3 (italic), 9 point type, 11 points of lead.
⟨IT0,14⟩	Specifies right indent of 14 picas.
⟨PM	Establishes Point Mark.
QUAD LEFT	
First column copy	
QUAD LEFT	Ends paragraph.
⟨IT14,0⟩	Specifies left indent of 14 picas.
⟨RM	Returns to the vertical position saved by the Point Mark.
Second column copy	
QUAD LEFT	Ends paragraph.
⟨IT0⟩	Cancels left indent.
Copy to follow . . .	
⟨ET	Cancels all special commands, returns to Installation Standard, and ends take.

Example 2: Use of Point Mark and Return Mark With Tabs to Set Two Parallel Columns

In setting the same sample above, the ⟨TS (Tab Set) command is used to establish three tab-columns: 12½ picas (first column of text); 1½ picas (gutter space); and 12½ picas (second column of text). The overall measure of 26½ picas is never changed.

In setting the first column of text, only the first tab-column is utilized. The line overflow principle allows justified copy to be set in the tab-column.

To set the second column of text, the *same tab-line is continued* by tabbing over the 2nd tab-column (gutter), and continuing to set copy in the 3rd tab-column after the Point Mark has been returned to.

Text Tape

⟨CC26.6,3,9,11⟩	Specifies measure of 26 picas 6 points, Font 3, 9 point type, 11 points of lead.
⟨TS12.6,14⟩	Sets tabs at left margins of 2nd and 3rd tab-columns. The right margin of the 3rd column is the overall measure.
MARK TAB	Marks tab-line, providing recognition for the tab-setting command.
First word	
⟨PM	Establishes Point Mark after first word.
Balance of first column copy	
QUAD LEFT	Ends paragraph and tabs to 2nd column.
QUAD LEFT	Tabs to 3rd column, since 2nd column is to be blank gutter space.
⟨RM	Returns to vertical position saved by Point Mark.
Second column copy	Sets copy justified in 3rd tab column.
⟨QT	Quads the last line left and terminates the tab line.
Copy to follow	At this point the copy may be set to the 26½ pica measure, the two-column format may be repeated, or all the specifications may be changed.
⟨ET	Cancels all special condition commands, returns to Installation Standard, and ends Take.

TABBING NOTE: The two columns of copy have been set as ONE TAB-LINE. Another way to accomplish the same task would have been to end the first column copy with ⟨QT *(Quit Tab), which would quad the last line left and terminate the tab line. Then, after returning to the Point Mark with the* ⟨RM *command, the tab line would have to be marked again with the* ⟨MA *command, and followed with two quadding commands—*⟨QL⟨QL*—to tab over the 1st and 2nd tab columns. However, it is a simpler concept, and requires fewer keystrokes to remain in the same tab line.*

POINT MAXIMUM / RETURN MAXIMUM

Example: Point Maximum and Return Maximum Used to Return to the Bottom of a Column

FORMAT STORAGE

An expandable capacity for format storage is another addition to this already powerful phototypesetter. Complex tabular material and often repeated formats are no problem. Total keyboarding time and errors are held to a minimum when all you have to put on the text tape is simple text. A total of 250 formats can be stored at one time, providing the user with optimum programming flexibility.

Second paragraph text .....

A Point Mark is entered, the first paragraph is set, extra lead is added, and a Point Maximum is entered at the baseline where the second paragraph is to begin. Then, the Point Mark at the top of the column is returned to, the headline is set in bold, and the Point Maximum is returned to in order to continue with the second paragraph. The column of text is 12 1/2 picas wide, with 9 point type, on 11 points of lead. There is 1 1/4 picas of space between the text column and the headline, which is set in 18 point type on 20 points of lead.

The font setup in Book or News Display is: Font 1 — lightface; Font 2 — boldface.

Text Tape

⟨CC30,1,9,11⟩	Specifies measure of 30 picas, Font 1, 9 point type, 11 points of lead. Indent Take from the right margin restricts setting area to 12 1/2 picas (30 minus 17.6).
⟨IT0,17.6⟩	
⟨PM	Establishes Point Mark in first baseline.
QUAD LEFT	
First paragraph	
QUAD LEFT	Ends paragraph.
⟨EL4⟩	Adds 4 points of extra lead.
⟨PX	Sets Point Maximum.
QUAD LEFT	
⟨RM	Returns to Point Mark.
⟨CF2,18,6⟩	Specifies Font 2 (boldface), 18 point type, 6 points of lead.
⟨IT13.9,0⟩	Specifies left indent of 13 picas 9 points, cancels right indent.
FORMAT	First line of headline.
QUAD LEFT	Terminates line.
⟨CL20⟩	Specifies new lead of 20 points for second line of headline.
STORAGE	Second line of headline.
⟨IT0⟩	Cancels indent.
⟨RX	Returns to the Point Maximum previously established.
⟨CF1,9,11⟩	Restores Initial Specifications to continue with text.
Second paragraph text	
QUAD LEFT	Ends paragraph

NOTE: The measure is never changed. Indents are used throughout to restrict the setting area.

It can be seen how great flexibility of vertical movement may be achieved by using the four Vertical Control commands in combination with each other.

INDENT COMMANDS

INDENT TAKE

For use of the ⟨IT command, please see examples under: *Reverse Leading*, page 76; *Ragged Copy Commands*, page 78; *Point Mark / Return Mark*, page 95; and *Point Maximum / Return Maximum*, page 96.

INDENT FIRST LINE

Example: Use of Indent First Line as a Paragraph Indent

THE WORLD'S LANGUAGES have been, in their majority, very imperfectly studied and classified. Far too little is yet known about the structure and affiliations of the tongues of the American Indians, the African Negroes, the natives of Australia and New Guinea, and a large number of the tongues spoken by Asia's teeming millions.

The languages of Europe, the Mediterranean basin, and the Near East, being the most readily accessible as well as the ones of which we have the longest unbroken records, have been definitely and satisfactorily assigned to groups and families, on the basis of certain definite resemblances.

It has long been the dream of certain linguists to .....

The ⟨IF command is controlled by the ⟨EP (End-of-Paragraph) command. The first line following an ⟨EP command will be indented the specified amount(s) from the left and/or right margins. All succeeding lines will be set to the full measure.

Text Tape

⟨CC24,1,10,11.5⟩	Specifies measure of 24 picas, lightface on Font 1, 10 point type, 11½ points of lead.
⟨IF1.9⟩	Specifies a first line left indent of 1 pica 9 points.
END PARAGRAPH	Activates the first line (paragraph) indent.
First paragraph	
END PARAGRAPH	As each paragraph is terminated with the End-of-Paragraph command, the last line will be quadded left, and the first line of the succeeding paragraph will be indented the specified amount.
Second paragraph	
END PARAGRAPH	
Third paragraph, etc.	

If it is desired *not* to indent the first line of a given paragraph (a block paragraph), the previous paragraph may be ended with QUAD LEFT.

INDENT HANG

Example: Indent Hang With and Without Full First Line

Concord Hymn

Sung at the completion of the Battle Monument, July 4, 1837

BY the rude bridge that arched the flood,
Their flag to April's breeze unfurled,
Here once the embattled farmers stood
And fired the shot heard round the world.

The foe long since in silence slept;
Alike the conqueror silent sleeps;
And Time the ruined bridge has swept
Down the dark stream which seaward creeps.

On this green bank, by this soft stream,
We set to-day a votive stone;
That memory may their deed redeem,
When, like our sires, our sons are gone.

Spirit, that made those heroes dare
To die, and leave their children free,
Bid Time and Nature gently spare
The shaft we raise to them and thee.

—RALPH WALDO EMERSON

The ⟨IH command is controlled by the End-of-Paragraph command. The first line following an End-of-Paragraph command will be set without an indent, and all succeeding lines will be indented the specified amount. When a line is terminated with Quad Left, however, the indent will continue.

The fonts loaded are: Font 1—lightface; Font 2—boldface; Font 3—italic; Font 4—bold italic.

Text Tape

⟨CC18,4,7⟩	Specifies maximum measure of 18 picas, Font 4, 7 point type, automatic lead.
⟨IA1.5⟩	Increments the automatic leading by 1½ points.
⟨NF	The following line is escaped without being flashed.
Sung at the ... Monument,	
⟨TT	A tab is set at the end of the line. Within this tab column centering will be done.
QUAD LEFT	The line is terminated.
⟨CF3,10⟩	Changes to Font 3 (italic) and 10 point type; automatic leading is still in effect.
MARK TAB	Initiates tab line.
⟨XF	Flashing is restored.
Concord Hymn	The title is set centered within the tab column.
QUAD CENTER	
⟨QT	The tab line is terminated; however, the tab itself remains for future use.
⟨EL6⟩	Executes 6 points of extra lead.
⟨CF4,7⟩	Changes to Font 4 (bold italic) and 7 point type. The line is flashed this time and quadded left.
Sung at the ... Monument,	
QUAD LEFT	
MARK TAB	The tab line is recognized again.
July 4, 1837	The date is set centered within the tab column.
QUAD CENTER	
⟨QT	The tab line is terminated.
⟨XT	The tab is canceled.
⟨EL3⟩	Executes 3 points of extra lead.
⟨CF2,20⟩	Changes to Font 2 (bold) and 20 point type.
⟨IH.10⟩	An Indent Hang of 10 points is specified.
END PARAGRAPH	Activates the Indent Hang, making the first line full.
SHIFT	Sets the initial cap "B", kerning it by 2 units.
⟨KC2⟩	
B	
⟨CF1,8,9.5⟩	Changes to Font 1 (lightface), 8 point type, 9½ points of lead, and sets the cap "Y".
Y	
UNSHIFT	
the rude ... the flood,	The first line is ended with Quad Left, since the next line is to be indented.
QUAD LEFT	
Their flag ... unfurled,	The second line is ended with End Paragraph, since the next line is to be full.
END PARAGRAPH	
Here once ... stood	The third line is ended with Quad Left, since the next line is to be indented.
QUAD LEFT	
And fired ... world.	
⟨EL4⟩	Executes 4 points of extra lead between stanzas.
END PARAGRAPH	
The foe ... slept;	The next three stanzas are set in the same manner—with the command END PARAGRAPH preceding lines to be full, and the command QUAD LEFT preceding lines to be indented.
QUAD LEFT	Terminates the last stanza.
⟨XI	The Indent Hang is canceled so that straight text may follow.

At the end of the last line of the fourth stanza, a ⟨TT (Tab Text) command is entered, the next line is marked for tabbing, and the author's name is set flush right in the column.

Indent Hang may be used with quadded material, as above, or with justified or ragged copy. The indent may be from the left or right margin, or both.

INDENT PARAGRAPH

Example: Indent Paragraph Within Full-Measure Text

In addition to the format specifications that you program for each different job, the Photomix phototypesetter, Series 8400, comes to you with an Installation Standard, programmed into the computer software—standards which you may change and permanently store at will.

Whenever specifications are incorrect or incomplete, at any point in the input tape, the computer of the phototypesetter either makes the calculations for you or returns to the installation standard.

For instance, leading is automatically calculated if not specified. At the end of the galley the computer tells you where and for what reason it made necessary decisions.

The ⟨IP command is used in the above sample to indent an isolated bold paragraph from the left and right margins. Ending the paragraph with the End Paragraph command automatically cancels the indents, and full-measure copy follows.

Font setup: Font 1—lightface; Font 2—boldface.

Text Tape

⟨CC18,1,9,10⟩	Specifies measure of 18 picas, Font 1 (lightface), 9
First paragraph	point type, 10 points of lead.
QUAD LEFT	Terminates paragraph.
⟨EL3⟩	Executes 3 points of extra lead.
⟨IP1.6,1.6⟩	Specifies indents of 1 pica 6 points from both left and right margins.
⟨CF2⟩	Changes to Font 2 (boldface).
Second paragraph	
END PARAGRAPH	Terminates paragraph and cancels the indents.
⟨EL3⟩	Executes 3 points of extra lead.
⟨CF1⟩	Returns to Font 1 (lightface).
Third paragraph	
QUAD LEFT	Terminates paragraph.

PARAGRAPH ENDING NOTE: The indent may be continued for several paragraphs by using QUAD LEFT *as a paragraph ending command. The last paragraph to be indented should be ended with the* END PARAGRAPH *command, which will cancel the indent(s).*

INDENT TEXT

Example: Text Indented the Value of a Word

DICTIONARIES Hyphenation is accomplished basically by rules of logic. However, the Engligh language contains a number of words which defy these rules. Because of this we have equipped the Photomix phototypesetter (Series 8400) with two dictionaries. One is permanent and words can be added or deleted at any time. Turning the power off on the phototypesetter will not destroy the permanent dictionary.

The second dictionary is temporary and is created for a specific job. This temporary dictionary may be added to only during the course of the job for which it is created. In either dictionary, you can specify any hyphenation or none at all.

In setting the sample above, the word "DICTIONARIES" plus an Em Space is set, the ⟨IX command is issued, and the text continues with the balance of copy indented at the point in the line where the ⟨IX command was introduced. Ending a paragraph with *Quad Left* will allow the indent to continue; ending a paragraph with *End Paragraph* will cancel the indent.

Font setup: Font 1—lightface; Font 2—boldface.

Text Tape

⟨CC24,2,9,10⟩	Specifies measure of 24 picas, Font 2, 9 point type, 10 points of lead.
SHIFT	Sets word in bold, followed by an Em Space (in the unshift position).
DICTIONARIES	
UNSHIFT	
EM SPACE	
⟨IX	Establishes position of indent in text.
⟨CF1⟩	Changes to Font 1.
First paragraph	
QUAD LEFT	Terminates paragraph; allows indent to continue.
⟨EL3⟩	Adds 3 points of extra lead.
Second paragraph	
END PARAGRAPH	Ends paragraph and cancels indent.
Text to follow	

CANCEL INDENT HANG

For use of the ⟨XI command, see the example under *Indent Hang*, page 98.

INDENT LEFT MARGIN

Example: Indent Left Margin Used for a Runaround

We can be but partially acquainted even with the events which actually influence our course through life, and our final destiny. There are innumerable other events—if such they may be called—which come close upon us, yet pass away without actual results, or even betraying their near approach, by the reflection of any light or shadow across our minds. Could we know all the vicissitudes of our fortunes, life would be too full of hope and fear, exultation or disappointment to afford us a single hour of true serenity. This idea may be illustrated by a page from the secret history of David Swan.

We have nothing to do with David until we find him, at the age of twenty, on the high road from his native place to the city of Boston, where his uncle, a small dealer in the grocery line, was to take him behind the counter. After journeying on foot, from sunrise till nearly noon of a summer's day, his weariness and the increasing heat determined him to sit down in the first convenient shade, and await the coming up of the stage-coach. As if planted on purpose for him, there soon appeared a little tuft of maples, with a delightful recess in the midst, and such a fresh bubbling spring that it seemed never to have sparkled for any wayfarer but David Swan. Virgin or not, he kissed it with his thirsty lips, and then flung himself along the brink, pillowing his head upon some shirts and a pair of pantaloons, tied up in a striped cotton handkerchief. The sunbeams could not reach him; the dust did not yet rise from the road after the heavy rain of yesterday; and his grassy lair suited the young man better than a bed of down. The spring murmured drowsily beside him; the branches waved dreamily across the blue sky overhead; and a deep sleep, perchance hiding dreams within its depths, fell upon David Swan.

—*Nathaniel Hawthorn*, Twice-Told Tales, *"David Swan"*

An ⟨IL command containing several pairs of values (number of lines/amount of indention) may be used to set a runaround like the one above.

In this example, the first three lines are set to the full measure; then thirteen lines are indented 10 picas; and when the number of lines specified for the indent have been set, the indent cancels itself and the balance is set to the full measure.

Font setup: Font 4—bold italic.

Text Tape

⟨**CC20,4,8,9**⟩	Specifies measure of 20 picas, Font 4, 8 point type, 9 points of lead.
⟨**IL3,0,13,10**⟩	Specifies three lines with no indent, then 13 lines with a left indent of 10 picas.
Text	Terminated with appropriate paragraph ending commands: QUAD LEFT, or END PARAGRAPH if an indent controlled by that command is in effect.

Numerous combinations of runarounds and full-measure text, as well as various shapes, may be achieved by adding more pairs of values (up to five pairs), and by using this command in combination with the ⟨IR (Indent Right Margin) command.

INDENT RIGHT MARGIN

Example: Indent Right Margin with Multiple Pairs of Lines/Indention Values

They who to States and Governours of the Commonwealth direct their Speech, High Court of Parlament, or wanting such accesse in a private condition, write that which they foresee may advance the publick good; I suppose them as at the beginning of no meane endeavour, not a little alter'd and mov'd inwardly in their mindes: Some with doubt of what will be the successe, others with feare of what will be the censure; some with hope, others with confidence of what they have to speake. And me perhaps each of these dispositions, as the subject was whereon I enter'd, may have at times variously affected; and likely might in these formost expressions now also disclose which of them sway'd most, but that the very attempt of this address thus made, and the thought of whom it hath recourse to, hath got the power within me to a passion, farre more welcome than incidentall to a Preface. Which though I stay not to confesse ere any aske, I shall be blameless, if it be no other, then the joy and gratulation which it brings to all who wish and promote their Countries liberty; whereof this whole Discourse propos'd will be a certaine testimony, if not a Trophey. For this is not the liberty which wee can hope, that no grievance ever should arise in the Commonwealth, that let no man in this World expect; but when complaints are freely heard, deeply consider'd, and speedily reformed, then is the utmost bound of civill liberty attain'd, that wise men looke for. To which if I now manifest by the very sound of this which I shall utter, that wee are already in good part arriv'd, and yet from such a steepe disadvantage of tyranny and superstition grounded into our principles as was beyond the manhood of a *Roman* recovery, it will bee attributed first, as is due, to the strong assistance of God, next to your faithfull guidance and undaunted Wisdome, Lords and Commons of England. Neither is it in God's esteeme the diminution of his glory, when honorable things are spoken of good men.

—John Milton, *Areopagitica*

An ⟨IR command containing multiple pairs of values (in this case, four) may be used to set a shape like the one above, which is actually a series of runarounds.

The right indents are as follows: the first eight lines are indented 2 picas; the next twelve lines are indented 11 picas; the next eight lines are indented 5 picas; and the next twelve lines are indented 11 picas. The indent cancels itself when type has been set for the last pair of values, and the remaining eight lines are set to the full measure of 16 picas, the last line being force justified.

Font setup: Font 1—Grenada (Book); Font 3—Grenada Light Italic.

Text Tape

⟨CC16,1,6,7⟩	Specifies measure of 16 picas, Font 1, 6 point type, 7 points of lead.
⟨IR8,2,12,11,8,5,12,11⟩	Specifies right indent for 8 lines, 2 picas; for 12 lines, 11 picas; for 8 lines, 5 picas; and for 12 lines, 11 picas.
Text	
⟨JU	Force justifies the last line.
⟨ET	Ends the take.

NOTE: To preserve the shape of the letter "E", the amount of text must be such that it precisely fills the last 8 lines set to the full measure of 16 picas. Editing may be necessary to accomplish this exact fit, and editing is where the greatest amount of time required for this job will be spent—not with formatting, which is quite simple.

EDITOR'S NOTE: The text which runs sequentially through the four skew examples which follow is taken from the introductions to Books I and IV of Tom Jones *by Henry Fielding.*

SKEW LEFT

Example: Negative Skew Left

AN AUTHOR ought to consider himself, not as a gentleman who gives a private or eleemosynary treat rather as one who keeps a public ordinary, at which all persons are welcome for their money. In the former case, it is well known that the entertainer provides what fare he pleases; and though this should be very indifferent, and utterly disagreeable to the taste of his company, they must not find any fault; nay, on the contrary, good-breeding forces them outwardly to approve and to commend whatever is set before them. Now the contrary of this happens to the master of an ordinary. Men who pay for what they eat will insist on gratifying their palates however nice and whimsical these may prove; and if everything is not agreeable to their taste, will challenge a right to censure, to abuse, and to d—n their dinner without control. To prevent, therefore, giving offence to their customers by any such disappointment, it hath been usual with the honest and well-meaning host to provide a bill of fare which all persons may peruse at their first entrance into the house; and having thence acquainted themselves with the entertainment which they may expect, may either stay and regale with what is provided for them, or may depart to some other ordinary better accommodated to their taste. As we do not disdain to borrow wit or wisdom from any man who is capable of lending us either, we have condescended to take a hint from these honest victuallers, and shall prefix not only a general bill of fare to our whole entertainment, but shall likewise give the reader particular bills to every course which is to be served up in this and the ensuing volumes. The provision, then, which we have here made is no other than *Human Nature.* Nor do I fear that my sensible reader, though most luxurious in his taste, will start, cavil, or be offended, because I have named but one article. The tortoise—as the alderman of Bristol, well learned in eating, knows by much experience—besides the delicious calipash and calipee, contains many different kinds of food; nor can the learned reader be ignorant, that in Human Nature, though here collected under one general name, is such prodigious variety, that a cook will have sooner gone through all the several species of animal and vegetable food in the word, than an author will be able to exhaust so extensive a subject.

The Skew Left command used for setting the sample above—⟨SL-25,18⟩—has a hyphen (minus) preceding the value for the number of lines (-25). The command will cause typesetting to begin with the maximum indent (18 picas) on the first line, and evenly decrease the indent, over 25 lines, to zero on the last line, at which point the full measure is resumed.

The Book fonts used are: Font 1—Grenada; Font 3—Grenada Light Italic.

Text Tape

⟨**CC26,1,8,9**⟩	Specifies measure of 26 picas, Font 1, 8 point type, 9 points of lead.
⟨**SL-25,18**⟩	Specifies negative left skew for 25 lines, with a maximum indent of 18 picas.
Text	
⟨**ET**	Ends the copy block, and the take.

Example: Positive Skew Left

AN OBJECTION may perhaps be apprehended from the more delicate, that this dish is too common and vulgar; for what else is the subject of all the romances, novels, plays, and poems, with which the stalls abound? Many exquisite viands might be rejected by the epicure, if it was a sufficient cause for his contemning of them as common and vulgar, that something was to be found in the most paltry alleys under the same name. In reality, true nature is as difficult to be met with in authors as the Bayonne ham, or Bologna sausage, is to be found in the shops. But the whole, to continue the same metaphor, consists in the cookery of the author; for, as Mr. Pope tells us, "True wit is nature to advantage drest; What oft was thought, but ne'er so well exprest." The same animal which hath the honour to have some part of his flesh eaten at the table of a duke, may perhaps be degraded in another part, and some of his limbs gibbeted, as it were, in the vilest stall in town. Where, then, lies the difference between the food of the nobleman and the porter, if both are at dinner on the same ox or calf, but in the seasoning, the dressing, the garnishing, and the setting forth? Hence the one provokes and incites the most languid appetite, and the other turns and palls that which is the sharpest and keenest. In like manner, the excellence of the mental entertainment consists less in the subject than in the author's skill in well dressing it up. How pleased, therefore, will the reader be to find that we have, in the following work, adhered closely to one of the highest principles of the best cook which the present age, or perhaps that of Heliogabalus, hath produced. This great man, as is well known to all lovers of polite eating, begins at first by setting plain things before his hungry guests, rising afterwards by degrees as their stomachs may be supposed to decrease, to the very quintessence of sauce and spices. In like manner, we shall represent Human Nature at first to the keen appetite of our reader in that more plain and simple manner in which it is found in the country, and shall hereafter hash and ragout it with all the high French and Italian seasoning of affectation and vice which courts and cities afford. By these means, we doubt not but our reader may be rendered desirous to read on forever, as the great person just above-mentioned is supposed to have made some persons eat.

The Skew Left command used for setting the sample above—⟨SL25,18⟩—will cause typesetting to begin with a zero indent (the full measure) on the first line, and even increase the indent, over 25 lines, to the maximum indent of 18 picas. When the indicated number of lines have been set, the full measure is resumed.

The Book fonts used are: Font 1—Grenada; Font 3—Grenada Light Italic.

Text Tape

⟨**CC26,1,8,9**⟩	Specifies measure of 26 picas, Font 1, 8 point type, 9 points of lead.
⟨**SL25,18**⟩	Specifies positive left skew for 25 lines, with a maximum indent of 18 picas.
Text	
⟨**ET**	Ends the copy block, and the take.

SKEW RIGHT

Example: Negative Skew Right

AS TRUTH distinguishes our writings from those idle romances which are filled with monsters, the productions, not of nature, but of distempered brains, and which have been therefore recommended by an eminent critic to the sole use of the pastrycook, so, on the other hand, we would avoid any resemblance to that kind of history which a celebrated poet seems to think is no less calculated for the emolument of the brewer, as the reading it should be always attended with a tankard of good ale—*While history with her comrade ale,— Soothes the sad series of her serious tale.*— For as this is the liquor of modern historians, nay, perhaps their muse, if we may believe the opinion of Butler, who attributes inspiration to ale, it ought likewise to be the potation of their readers, since every book ought to be read with the same spirit and in the same manner as it is writ. Thus the famous author of Hurlothrumbo told a learned bishop, that the reason his lordship could not taste the excellence of his piece, was that he did not read it with a fiddle in his hand; which instrument he himself had always had in his own, when he composed it. That our work, therefore, might be in no danger of being likened to the labours of these historians, we have taken every occasion of interspersing through the whole sundry similes, descriptions, and other kind of poetical embellishments. These are, indeed, designed to supply the place of the said ale, and to refresh the mind, whenever those slumbers, which in a long work are apt to invade the reader as well as the writer, shall begin to creep upon him. Without interruptions of this kind the best narrative of plain matter of fact must overpower every reader; for nothing but the everlasting watchfulness, which Homer has ascribed only to Jove himself, can be proof against a newspaper of many volumes. We shall leave to the reader to determine with what judgment we have chosen the several occasions for inserting those ornamental parts of our work. Surely it will be allowed that none could be more proper than the present, where we are about to introduce a considerable character on the scene; no less, indeed than the heroine of this heroic, historical, prosaic poem. Here, therefore, we have thought proper to prepare the mind of the reader for her reception, by filling it with every pleasing image which we can draw from the face of nature. And for this method we plead many precedents. First, this is an art well known to, and much practised by our tragic poets, who seldom fail to prepare their audience for the reception of their principal characters.

The Skew Right command which is used for setting the sample above—⟨SR-25,18⟩—has a hyphen (minus) preceding the value for the number of lines (-25). The command will cause typesetting to begin with the maximum indent (18 picas) on the first line, and evenly decrease the indent, over 25 lines, to zero on the last line, at which point the full measure is resumed.

The Book fonts used are: Font 1—Grenada; Font 3—Grenada Light Italic.

Text Tape

⟨**CC26,1,8,9**⟩	Specifies measure of 26 picas, Font 1, 8 point type, 9 points of lead.
⟨**SR-25,18**⟩	Specifies negative right skew for 25 lines, with a maximum indent of 18 picas.
Text	
⟨**ET**	Ends the copy block, and the take.

Example: Positive Skew Right

THUS THE HERO is always introduced with a flourish of drums and trumpets in order to rouse a martial spirit in the audience, and to accommodate their ears to bombast and fustian, which Mr. Locke's blind man would not have grossly erred in likening to the sound of a trumpet. Again, when lovers are coming forth, soft music often conducts them on the stage, either to soothe the audience with the softness of the tender passion, or to lull and prepare them for that gentle slumber in which they will most probably be composed by the ensuing scene. And not only the poets, but the masters of these poets, the managers of playhouses, seem to be in on this secret; for, besides the aforesaid kettle-drums, etc., which denote the hero's approach, he is generally ushered on the stage by a large troop of half a dozen scene-shifters; and how necessary these are imagined to his appearance may be concluded from the following theatrical story:— King Pyrrhus was at dinner at an ale-house bordering on the theatre, when he was summoned to go on the stages. The hero, being unwilling to quit his shoulder of mutton, and as unwilling to draw on himself the indignation of Mr. Wilks (his brother-manager) for making the audience wait, had bribed these his harbingers to be out of the way. While Mr. Wilks, therefore, was thundering out, "Where are the carpenters to walk on before King Pyrrhus?" that monarch very quietly ate his mutton, and the audience, however impatient, were obliged to entertain themselves with music in his absence. . . . To be plain, I must question whether the politician, who hath generally a good nose, hath not scented out somewhat of the utility of this practice. I am convinced that awful magistrate my Lord Mayor contracts a good deal of that reverence which attends him through the year by the several pageants which precede his pomp. Nay, I must confess, that even I myself, who am not remarkably liable to be captivated with show, have yielded not a little to the impressions of much preceding state. When I have seen a man strutting in a procession, after others whose business was only to walk before him, I have conceived a higher notion of his dignity than I have felt on seeing him in a common situation. But there is one instance, which comes exactly up to my purpose. This is the custom of sending on a basket-woman, who is to precede the pomp at a coronation, and to strew the stage with flowers before the great personages begin their procession. The ancients would certainly have invoked the goddess Flora for this purpose, and it would have been on difficulty for their priests or politicians to have persuaded the people of the real presence of the deity, though a plain mortal had personated her and performed her office. But we have no such design of imposing on our reader; and therefore those who object to the heathen theology, may, if they please, change our goddess into the above-mentioned basket-woman.

The Skew Right command which is used for setting the sample above—⟨SR25,18⟩—will cause typesetting to begin with a zero indent (the full measure) on the first line, and evenly increase the indent, over 25 lines, to the maximum indent of 18 picas. When the indicated number of lines have been set, the full measure is resumed.

The Book fonts used are: Font 1—Grenada; Font 3—Grenada Light Italic.

Text Tape

⟨CC26,1,8,9⟩	Specifies measure of 26 picas, Font 1, 8 point type, 9 points of lead.
⟨SR25,18⟩	Specifies positive right skew for 25 lines, with a maximum indent of 18 picas.
Text	
⟨ET	Ends the copy block, and the take.

END-OF-PARAGRAPH

For use of the ⟨EP command, see examples under: *Indent First Line*, page 98; *Indent Hang*, page 98; *Indent Paragraph*, page 100; and *Indent Text*, page 100.

MISCELLANEOUS COMMANDS

END-OF-TAKE

For use of the ⟨ET command, see the examples under: *Initial Specifications at the Beginning of a Take*, page 72; *Interword Spacing*, page 77; *Tab Set*, page 81; *Tab Number*, page 84; *Tab Proportion*, page 89; *Tab Text*, page 91; *Point Mark / Return Mark*, page 95; and *Indent Right Margin*, page 102.

QUAD FROM MIDDLE

For use of the ⟨QM command, see the example under *Zero Leading*, page 75.

WITH LEADERS

For use of the ⟨WL command, see the example (with single keystroke) under *Tab Set*, page 81; and also Appendix H, for a description of the effects of various terminators on lines containing the With Leaders or With Character commands.

WITH CHARACTER

For use of the ⟨WX command, see the example (with single keystroke) under *Tab Number*, page 84; and also Appendix H, for a description of the effects of various terminators on lines containing the With Leaders or With Character commands.

CHANGE SET WIDTH

Example: Increasing Set Width for Special Effect

This product will enthrall your every sense, make you irresistable to all who encounter your very presence, and invite the angels from on high to flutter about your head and shoulders.

CAUTION

Do not apply near the eyes, nose, ears, mouth, elbows, or ankles. If over-irresistibility results, flush with plenty of water and call your family psychiatrist at once.

For those who wish to overindulge or be overindulged, this supreme product should prove safe under extraordinary circumstances. The manufacturer, however, may not be held responsible for flights of fancy as a result of the use of this product.

A special "Caution" paragraph is to be set in boldface in the middle of a galley of copy. The Set Width will be slightly increased to make the paragraph stand out more visually, by adding white space between the characters.

The font setup is: Font 1 — lightface; Font 2 — boldface. The layout specifications for the galley of copy follow:

1. Set one paragraph of lightface text with a measure of 30 picas, 10 point type, on 12 points of lead. The paragraph indent is 1 pica.
2. After the first paragraph, center the head "CAUTION" in 12 point boldface on 28 points of lead.

3. Add 4 points of extra lead, and set the paragraph in 10 point boldface on 12 points of lead, indented 5 picas from each margin. **Increase the Set Width for the 10 point boldface type by three-quarters of a point size.**
4. After the bold paragraph, add an extra 8 points of lead and continue with lightface text, 30 picas wide, 10 point type on 12 points of lead.

Text Tape

⟨CC30,1,10,12⟩	Specifies measure of 30 picas, Font 1, 10 point type, 12 points of lead.
⟨IF1⟩	Specifies first line indent of 1 pica from the left margin.
END PARAGRAPH	Activates the first line indent.
First paragraph	
QUAD LEFT	Ends paragraph.
⟨CF2,12,28⟩	Changes to Font 2, 12 point type, 28 points of lead.
CAUTION	
QUAD CENTER	Centers bold head and terminates line.
⟨EL3⟩	Adds 3 points of extra lead.
⟨CP10,12⟩	Changes point size to 10, leading to 12.
⟨CW10.3⟩	The escapement of this face will be the equivalent of $10^{3}/_{4}$ point type.
⟨IP5,5⟩	Indents paragraph 5 picas from each margin. First line indent is added to this, making a 6 pica left indent on the first line.
Bold paragraph	
END PARAGRAPH	Ends paragraph, cancels paragraph indent, activates first line indent for next paragraph.
⟨EL8⟩	Adds 8 points of extra lead.
⟨CF1⟩	Changes to Font 1 and cancels temporary set width.
Lightface text	

KERN CHARACTER

Example: The Classic Example of Kerning . . . AWAY

The ⟨KC command affects only the character immediately following it:

AWAY BEFORE KERNING
AWAY AFTER KERNING

Text Tape

SHIFT	
⟨KC8⟩	Subtracts 8 units from the value of the letter "A".
A	
⟨KC8⟩	Subtracts 8 units from the value of the letter "W".
W	
⟨KC6⟩	Subtracts 6 units from the value of the letter "A".
A	
Y	Escapes normally.

Example: Kerning a Fixed Space

The typesetter is able to kern any fixed space, as well as any character. The En Space normally has a unit value of 18 units. If a fixed space of 13 units is needed, the En Space may be kerned in this manner:

⟨KC5⟩	Subtracts 5 units from the value of the En Space, making it worth 13 units.
EN SPACE	

Refer to Appendix A for complete instructions on kerning Fixed Spaces.

NO ESCAPEMENT

Example: Flashing a Character a Number of Times to Make it Bolder

On a News Display font, the ballot box is available in only one weight. Flashing the character a number of times without escaping will produce a heavier image:

Flashed once: ☐ Flashed three times: ☐

To flash the character more than once:

⟨NE	Prevents character which follows from escaping.
PI	Accesses the ballot box (a pi character).
2	
⟨NE	No escapement.
PI	Flashes ballot box a second time.
2	
PI	Flashes ballot box a third time, escaping this time.
2	

Example: No Escaping a Baseline Rule Segment At the Beginning of a Line

Baseline rule segments are inserted into the measure from the right margin, and as many segments as will fit are set in the line. Occasionally, conditions arise (point size vs. measure) where an *even* number of segments will not fit in the measure, and the leftover space is placed at the left margin. To fill this leftover space, it is necessary to flash one segment at the beginning of the line without escaping, actually overlaying it on the beginning of the line.

To illustrate this, a measure and point size were chosen where the segments would not fit evenly in the line. M's are placed to show the left and right margins.

In the first sample, the rule is set without the No Escapement of a segment at the beginning of the line, so the measure *is not* completely filled:

WITH CHARACTER
BASELINE RULE
QUAD LEFT produces . . .

MMMMMM **MMMMMM**
MMMMMM **MMMMMM**

In this next sample, a segment is flashed without escapement at the beginning of the line, so the measure *is* completely filled:

⟨NE
BASELINE RULE
WITH CHARACTER
BASELINE RULE
QUAD LEFT produces . . .

MMMMMM **MMMMMM**
MMMMMM **MMMMMM**

Nine point type, in a measure of 28 picas, 9 points is used here to emphasize the point. From an aesthetic point of view, however, it is inadvisable to set baseline rules in any point size but 6, since rules in larger sizes tend to show the definition of the individual segments, and 6 point rule segments fit more evenly in the

broadest range of measures. Sometimes it is necessary, however, to fill the measure totally with a rule in a larger size.

See Appendix E for a discussion of setting baseline rules and bars of any thickness with 6 point type; see Appendix H for a description of the effects of various terminators on lines containing With Leaders or With Character commands; and see examples and special notes on pages 142 and 144.

NOTE: The ⟨NE *command prevents escapement only of the first flashable character which follows it.*

NO FLASH

For use of the ⟨NF command, see the example under *Tab Text*, page 91.

CANCEL NO FLASH

For use of the ⟨XF command, see the example under *Tab Text*, page 91.

SECTION 7

FORMAT STATEMENTS

There are three primary purposes for the storing of Format Statements:

1. **To Count Lines** through use of the Delay Lines command.
2. **To Save Work** — Commands and text, setting all variations of type, ranging from the very simple to the very complex, may be stored in the computer and retrieved whenever needed.

   The keyboard operator needs to be concerned, in most cases, only with the accuracy of the text itself, since all typesetting functions are taken care of by the stored format being used. The normal apprehension which accompanies the coding of specific commands and their insertion in the proper sequence vanishes, and typing speed increases when the operator's only worry is accurate spelling.
3. **To Ensure Accuracy** — Accuracy of the typesetting functions and standing type is certain when the data is stored in a Format Statement and repeated the same way every time. The only possible mistakes are use of the wrong format or improper merging with the format.

FORMAT COMMANDS

The following format commands are exclusive of all other commands, in that they may be used *only* in connection with stored Format Statements. Their functions are explained in detail in Section 5, and their use will be made evident in the examples of this section. The structures of the specific commands are repeated here:

STORE FORMAT
SUPERSHIFT
S
F
format number
between 1 and 250
UNSUPERSHIFT

END FORMAT
SUPERSHIFT
E
F

USE FORMAT
SUPERSHIFT
U
F
format number
between 1 and 250
UNSUPERSHIFT

MERGE COPY
SUPERSHIFT
M
C

DELAY LINES
SUPERSHIFT
D
L
number of lines
selected for delay
UNSUPERSHIFT

See also Appendix D, *The Format Storage Command.*

CAPACITY OF THE FORMAT TABLE

The Photomix phototypesetter, Series 8400, basic 8K model incorporates a 1,900 character storage area (optionally expandable in increments of 8K, adding approximately 8,000 characters with each increment) which may be used for Format and/or Dictionary storage. The typesetting program, as supplied, allots 900 of these characters to Format storage. For details on this feature and information on how the capacity of the Format Table may be altered, please consult Appendix D, *The Format Storage Command.*

As regards the storing of formats, it is only essential for the operator to know that in this case the number of codes to be stored is not necessarily equal to the number of keystrokes employed in keyboarding the format to be stored.

When long formats, or a large number of formats, are to be stored, it may at times be useful to determine the amount of storage area which will be occupied by the format(s). These simple guidelines may be followed for assessing the actual length of a Format Statement:

- **SUPERSHIFT and UNSUPERSHIFT are not counted.** These are simply command designators, indicating the opening and closing of a command, and are not stored by the computer.
- **The two alpha characters comprising the command structure are counted as ONE.**
- **When a command contains variable values, each numeric character is counted as ONE.**
- **Periods, decimals and commas are** NOT COUNTED **when they appear within a command.** When they appear as *stored text* they *are counted* just as any other character.
- **Commands which do not contain variable values are counted as ONE.** The computer will recognize the command in the same manner whether it is accessed with three keystrokes, or a single keystroke. Examples of these arbitrary commands, without variable values, are: ⟨QL, ⟨PM or ⟨RX.
- **Each alphanumeric character is counted as ONE,** regardless of where it appears in the format.

As an example, the command ⟨CC44.9,2,10,11.5⟩ will be counted as 10 codes, although it is accessed by 18 keystrokes. Supershift, periods, commas, decimals, and Unsupershift are not counted. "CC" counts as ONE, and each number counts as ONE.

FORMAT SIZE

No format may be longer than 256 characters (actual keystrokes, not stored characters), the size of the input buffer of the typesetter. However, given the facility of stringing formats, by addressing only *one* format, the user may access the entire contents of the Format Table (1,900) or more characters). A complete discussion of format stringing and looping may be found in Appendix E.

FORMAT OVERLAY AND CLEARING THE FORMAT TABLE

Within the Format Table, Format Statements with numbers (names) assigned to them are strung in a single line, one after the other, regardless of their assigned number.

Visualize a long elastic thread which is suspended. Imagine that beads are being strung on the elastic thread, and with the addition of each bead the thread expands downward to accommodate it. The *beads* are the *codes of data* within a

Format Statement. Format Statements of many different lengths are strung along the thread; some are comprised of many beads, some just a few.

One of these Format Statements may be *deleted* with the commands ⟨**SF1**⟩⟨**EF** —in other words, storing a format which contains no data. When this happens, only the format's name (1) is deleted, and the elastic thread pulls the Format Statements which follow up, replacing the beads formerly occupied by the data in Format 1. This is called *Format Overlay*, in which data is never totally deleted: it is just replaced by new data overlaid upon it.

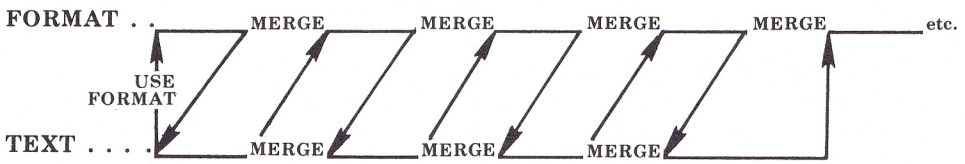
In like manner, when a Format Statement of a particular assigned number is to be replaced with new data bearing the same number, the Format Statement must first be deleted—⟨SF1⟩⟨EF. The other formats will "close up" over the area formerly occupied by the data of Format 1. Then the corrected or *new data* bearing the same format number may be entered. The new format will go to the end of the line, so to speak, as the bottom beads on the elastic thread.

This means, of course, that if a number of Format Statements have been stored, any one of them may be revised and restored without disturbing the others.

At times it may be necessary to clear the entire Format Table. The command ⟨**SF999**⟩ will clear all of the format numbers (names) in the Format Table, leaving all of the old data to be overlaid with *new* Format Statements. This procedure is necessary whenever it is doubtful whether a new Format Statement will fit in the Format Table.

MERGING BETWEEN THE FORMAT AND THE TEXT STREAM

The Merge Copy command is a means of interplay between the stored Format Statement and the input text stream. When a stored format is addressed on the text tape, it will be processed up to the first Merge code, where a switch is made to the text stream and processing continues up to the first Merge code within text. There a return is made to the format, where processing continues up to the second Merge code. Then another return is made to the text tape. Interplay between the stored Format Statement and the text stream continues for the duration of the Format Statement and is totally controlled by Merge codes, as shown in the following diagram:



It is essential that the Merge codes on the text tape correspond directly with the Merge codes within the stored Format Statement. If merging does not take place in the proper sequence, the desired results may not be achieved.

NOTE: At the completion of a format—⟨EF*—an automatic return is made to the text stream. An* ⟨EF *command found anywhere in the text stream will discontinue use of the format before it has been completely executed. Once use of a format has been discontinued, the format cannot be returned to; it must be used again from the beginning.*

The Delay Lines command works in much the same manner as the Merge Copy command, setting the specified number of lines from the text tape and returning to the format for more instructions.

LOOPING AND STRINGING FORMATS

It will often be found convenient to have a format *loop*, that is, automatically use itself over and over again until terminated on the text tape with the ⟨EF

command, or by using another format. Examples of this practice are found later in this section. In long tables this will save a number of keystrokes, as long as care is taken that the Merge codes match precisely.

Format looping is *not* recommended for tables which have a large number of tabular columns, since an error in merging may throw all of the following columns out of sequence.

One may also *string* formats, or have them call each other in succession. This will also be seen in the examples in this section. It is also possible for formats to call one another several times, and end in a format which loops. In such cases, only the first format needs to be addressed on the text tape.

A little imagination will lead the operator to use many combinations of formats. Whatever works, and saves time and effort, is right!

NOTE: It is important for the user to read Appendix E, which contains a complete discussion of stringing and looping formats.

FORMAT EXAMPLES

The examples which follow are intended to be representative of typesetting problems which may be encountered, and also to give the typographer and mark-up editor ideas for the writing and use of stored Format Statements, as well as possible layout ideas. These examples are not intended to cover all possible typesetting applications, as that is not the purpose of this manual.

Please consult your Singer Sales Representative when applications are encountered which are either so complex or unique that difficulty is found in writing the Format Statement, or in deciding how certain effects should best be accomplished. He will be happy to find a solution to your problem.

EXAMPLE FORMAT USED IN THIS MANUAL

The format explained below is the one used to set the explanation itself. This format is used throughout this section and Section 6 to display and explain coding on format and text tapes. Both the Point Mark and Point Maximum are used to set the copy within tabular columns, and all commands are stored so that the entire tape explanation may be set simply by Merging with the format.

Font setup: Font 1 — lightface (Book); Font 2 — boldface (Book); Font 3 — not used; Font 4 — Mathematical/Technical No. 1 (used to set the Supershift ⟨ and Unsupershift ⟩ symbols).

Format Tape

⟨**SF9**⟩	Stores Format 9.
⟨**CC30,2,9,10**⟩	Specifies a measure of 30 picas, Font 2 (boldface), 9 point type, 10 points of lead.
⟨**TS12**⟩	Sets the right margin of the first column at 12 picas.
MARK TAB	The line is marked for tabbing.
MERGE COPY	Copy to go flush left on the first line will be taken from the text tape.
⟨**PM**	Sets a Point Mark in the line.
SHIFT	Inserts a Thin Space to separate copy from leaders.
THIN SPACE	
⟨**CF1**⟩	Changes to Font 1 (lightface) for leaders.

⟨**WL**	Leaders are inserted for the balance of the column. The three-keystroke command structure is used because fewer keystrokes are required if we remain in a shift condition.
⟨**KC6**⟩	Inserts a Thin Space, kerned by 6 units, making it 3
THIN SPACE	units. This will provide a little space between the leaders and the next column.
MARK TAB	Terminates the first line, and begins a new line to provide for extra lines of flush left boldface copy in column 1.
⟨**CF2**⟩	Changes back to Font 2.
MERGE COPY	Additional flush left lines will be taken from the text tape. Each line must be terminated with the End Paragraph command to prevent tabbing to the next column.
⟨**PX**	Sets a Point Maximum in the last baseline.
EN SPACE	If there is no second line in column 1, the En Space will take its place.
QUAD LEFT	Quads the last line left and tabs to second column.
⟨**CF1**⟩	Specifies Font 1 (lightface) for the second column of text.
⟨**RM**	Returns to the Point Mark which was set in the first baseline.
MERGE COPY	Copy for the explanation will be taken from the text tape.
⟨**PX**	A Point Maximum is set in the last baseline. If it is greater than the one set in column 1, it will be retained; if it is lesser, it will be ignored.
⟨**QT**	Quads the last line of column 2 left and terminates the tab line.
⟨**RX**	Returns to the Point Maximum (whichever one was greater).
⟨**UF9**⟩	The format loops and begins over again.

Text Tape

⟨**UF9**⟩	Calls Format 9 into use.
⟨**CF4**⟩	Changes to Font 4 to set the Supershift symbol.*
SHIFT	Sets the ⟨ symbol, accessed by the open parenthesis.
(	
⟨**CF2**⟩	Changes to Font 2 and sets the command.
SF9	
⟨**CF4**⟩	Sets the ⟩ symbol, accessed by the close parenthesis
)	on Font 4.
MERGE COPY	The leaders will be set automatically from the format.
MERGE COPY	No second line is to be set in column 1, so a switch is made back to the format where processing continues.
Text of explanation	The text is set in column 2.
MERGE COPY	Returns to the beginning of the format.
⟨**CF4**⟩	Changes to Font 4 and sets the ⟨ symbol.
SHIFT	
(	
⟨**CF2**⟩	Changes to Font 2 and sets the command.
CC30,2,9,10	
⟨**CF4**⟩	Changes to Font 4 and sets the ⟩ symbol.
)	

*These font changes and symbols are not stored in the format because they are not required to set every command; and addressing a second format to set the symbols automatically would take as many keystrokes as changing fonts and setting the symbols on the text tape; also it would be difficult for the operator to keep track of which format is being used.

MERGE COPY	The leaders will be set automatically from the format.
MERGE COPY	Returns processing to the format, since there isn't a second line.
Text of explanation	The text is set in column 2.
MERGE COPY	The format loops.

The format continues looping as each command or group of commands and explanation is set. No font changes need be made for commands where the Supershift ⟨ and Unsupershift ⟩ symbols do not appear.

NOTE ON MERGING: When a group of commands (two or more lines) appears in column 1 with a single explanation in column 2, the first Merge code follows the first line in column 1, each subsequent line is terminated with the End Paragraph command to prevent tabbing, and the last line is followed by the second Merge code.

NOTE ON LEAVING FORMAT: After the last explanation has been set, the following coding will terminate use of the format and allow full-measure text to follow:

MERGE COPY	Returns to the format so that the functions following the last Merge code in the format may be executed.
⟨**QT**	Since the format has looped, the line has been marked for tabbing (commands leading up to the first Merge code in the format). It is necessary to quit the tab line for full-measure text to follow.
⟨**EF**	Terminates use of the format.
full-measure text	Full-measure text follows, preceded by appropriate specifications.

OUTLINE FORMATS

II. DATA COMMUNICATIONS

A. To establish, where applicable, common standards for both information processing and data communications.

(1) **Interchange Codes**

(a) Same as IA(1)

(2) **Character Structures and Formats**

(a) Bit sequencing in serial-by-bit data transmission.

(b) Character structure and character parity sense for serial-by-bit data communication.

(c) Character structure and character parity sense for parallel-by-bit data communication.

(3) **Operating Procedures**

(a) Formats and procedures for the operation of:

1. Data communication links isolated from switched communication networks.
2. Message and circuit switched communication networks.
3. Communicating with time shared computer systems.
4. Error detection and correction.

B. To facilitate the interfacing of information processing and data communications systems.

The above section of an outline is set as tabular matter—with a series of formats incorporating the ⟨TT (Tab Text) command. These formats may be used with any measure, point size, or leading specifications, and thus may be held in a "format library" for use with any text requiring this particular outline layout. Because the tabs are set to the actual font and type size in use (specified on the text tape), the outline will always be well proportioned.

Five formats are used:

- **Format 50** — Sets the Roman numeral head. The tab is set to the value of the largest (in unit value) Roman numeral anticipated: "VIII." The numeral is set flush right.
- **Format 51** — Sets the capital letter sub-statement. The tab is set to the value of the largest letter anticipated: "M." The letter is set flush left.
- **Format 52** — Sets the "(1)" subhead. The tab is set to the value of a 1 digit number. The number in parentheses is set flush left.
- **Format 53** — Sets the "(a)" sub-statement. The tab is set to the value of the largest lowercase letter anticipated: "m." The letter in parentheses is set flush left.
- **Format 54** — Sets the Arabic numbered sub-statement. The tab is set to the value of a 1 digit number.

Please note that, in order to simplify keyboarding, these formats store periods and parentheses wherever possible.

Font setup (Book fonts): Font 1—lightface; Font 2—boldface; Fonts 3 & 4 are not used.

Format Tape

⟨**SF50**⟩	Stores Format 50.
⟨**ZL**	Specifies zero leading advance for the "dummy" tab-setting line which follows.
⟨**CF1**⟩	Ensures that Font 1 (lightface) will be used for this head.
⟨**NF**	Establishes no flash condition.
SHIFT VIII. **EN SPACE** ⟨**TT**	Sets a tab to the value of the largest anticipated Roman numeral plus an En Space to divide it from the text. Two columns are formed: one from the left margin to the tab, and the other from the tab to the end of the measure.
⟨**XF**	Flashing is restored.
QUAD LEFT	Terminates the "dummy" tab-setting line (no lead is advanced).
MARK TAB	The line is marked for tabbing.
MERGE COPY	The Roman numeral will be taken from the text tape.
period	A period is set following the numeral.
EN SPACE **QUAD RIGHT**	An En Space is inserted to match the one in the tab-setting line and the numeral is set quad right in the column. The lens is now sitting at the beginning of the second column.
MERGE COPY	Copy for the head is taken from the text tape.
⟨**QT**	Sets the head flush left and terminates the tab line.
⟨**XT**	Cancels the tab.
⟨**EL3**⟩	Executes 3 points of extra lead.
⟨**UF51**⟩	Calls Format 51 which will always follow.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF51**⟩	Stores Format 51.

⟨ZL	Specifies zero leading advance for the "dummy" tab-setting line which follows.
⟨NF	Establishes no flash condition.
SHIFT VIII. EN SPACE ⟨TT M. EN SPACE ⟨TT	Duplicates the tab-setting procedure used in Format 50, forming the first column, which will be blank. Sets a tab to the value of the largest anticipated capital letter plus an En Space to divide it from the text. This forms the second column; the third column extends to the end of the measure.
⟨XF	Flashing is restored.
QUAD LEFT	Terminates the "dummy" tab-setting line (no lead is advanced).
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first column (blank).
MERGE COPY	The capital letter will be taken from the text tape.
period	A period is set following the letter.
QUAD LEFT	Quads the letter and the period left and advances to the third column.
MERGE COPY	Copy is taken from the text tape.
⟨QT	Quads the last line of column three left and terminates the tab line.
⟨XT	Cancels the tabs.
⟨EL3⟩	Executes 3 points of extra lead.
⟨EF	Terminates the format. Another format is not called because formats following this one will vary.
• TAPE FEED	Isolates the Format Statements.
⟨SF52⟩	Stores Format 52.
⟨ZL	Specifies zero leading advance for the "dummy" tab-setting line which follows.
⟨CF1⟩	Ensures that Font 1 (lightface) will be used for the number.
⟨NF	Establishes no flash condition.
SHIFT VIII. EN SPACE M. EN SPACE ⟨TT	The first column is added onto, including characters and fixed spaces set in the first two tab columns of the foregoing formats. A tab is set, forming a new first column which will be blank.
(UNSHIFT 1) SHIFT EN SPACE ⟨TT	Sets a tab to the value of a one-digit number enclosed in parentheses plus an En Space to divide it from the text. This forms the second column; the third column extends to the end of the measure.
⟨XF	Flashing is restored.
QUAD LEFT	Terminates the "dummy" tab-setting line (no lead is advanced).
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first column (blank).
(	The opening parenthesis is set.
UNSHIFT	The number will be lowercase.
MERGE COPY	The number will be taken from the text tape.
)	The closing parenthesis is set.
QUAD LEFT	Quads the number in parentheses flush left and advances to the third column.
⟨CF2⟩	Specifies Font 2 (boldface) to set the subhead.
MERGE COPY	Copy is taken from the text tape.
⟨QT	Quads the line left and terminates the tab line.
⟨XT	Cancels the tabs.
⟨EL3⟩	Executes 3 points of extra lead.
⟨EF	Terminates the format.

• **TAPE FEED**	Isolates the Format Statements.
⟨**SF53**⟩	Stores Format 53.
⟨**ZL**	Specifies zero leading advance for the "dummy" tab-setting line which follows.
⟨**CF1**⟩	Ensures that Font 1 (lightface) will be used for the copy which follows.
⟨**NF**	Establishes no flash condition.
SHIFT	The first column is added onto, including characters and fixed spaces set in the first two tab columns of all of the foregoing formats. A tab is set, forming a new first column which will be blank.
VIII.	
EN SPACE	
M.	
EN SPACE	
(	
UNSHIFT	
1)	
SHIFT	
EN SPACE	
⟨**TT**	
(.....	Sets a tab to the value of the largest anticipated lowercase letter enclosed in parentheses plus an En Space to divide it from the text. This forms the second column; the third column extends to the end of the measure.
UNSHIFT	
m)	
SHIFT	
EN SPACE	
⟨**TT**	
⟨**XF**	Flashing is restored.
QUAD LEFT	Terminates the "dummy" tab-setting line (no lead is advanced).
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first column (blank).
(.....	The opening parenthesis is set.
UNSHIFT	The letter will be lowercase.
MERGE COPY	The letter will be taken from the text tape.
)	The closing parenthesis is set.
QUAD LEFT	Quads the letter in parentheses flush left and advances to the third column.
MERGE COPY	Copy is taken from the text tape.
⟨**QT**	Quads the last line left and terminates the tab line.
⟨**XT**	Cancels the tabs.
⟨**EL3**⟩	Executes 3 points of extra lead.
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF54**⟩	Stores Format 54.
⟨**ZL**	Specifies zero leading advance for the "dummy" tab-setting line which follows.
⟨**CF1**⟩	Ensures that Font 1 (lightface) will be used for the copy which follows.
⟨**NF**	Establishes no flash condition.
SHIFT	The first column is added onto, including characters and fixed spaces set in the first two tab columns of all of the foregoing formats. A tab is set, forming a new first column which will be blank.
VIII.	
EN SPACE	
M.	
EN SPACE	
(	
UNSHIFT	
1)	
SHIFT	
EN SPACE	
(	
UNSHIFT	
m)	
SHIFT	

EN SPACE **UNSHIFT** **⟨TT** 1.	Sets a tab to the value of a one-digit number followed by a period plus an En Space to divide it from the text. This forms the second column; the third column extends to the end of the measure.
SHIFT **EN SPACE** **UNSHIFT** **⟨TT**	
⟨XF	Flashing is restored.
QUAD LEFT	Terminates the "dummy" tab-setting line (no lead is advanced).
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first column (blank).
MERGE COPY	The number will be taken from the text tape.
period	A period is set following the number.
QUAD LEFT	Quads the number and the period flush left and advances to the third column.
MERGE COPY	Copy is taken from the text tape.
⟨QT	Quads the last line left and terminates the tab line.
⟨XT	Cancels the tabs.
⟨EL3⟩	Executes 3 points of extra lead.
⟨EF	Terminates the format.
• **TAPE FEED**	Separates the last Format Statement from the End-of-Take command which follows.
⟨ET	Ends the storing of formats and stops the reader.

More formats may of course be added, continuing with lowercase Roman numerals and repeating the same series of steps—each time adding onto the blank first column that went before.

Following is the coding for the text tape which would be used in setting the sample on page 116:

Text Tape

⟨CC28,1,10,11⟩	Specifies measure of 28 picas, Font 1, 10 point type, 11 points of lead.
⟨UF50⟩	Calls Format 50 into use, executing all commands up to the first Merge code, where a switch is made back to the text tape.
SHIFT	Sets the desired Roman numeral.
II	
MERGE COPY	Returns to the format for further instructions. Processing continues up to the next Merge code, where a switch is made back to the text tape.
DATA COMMUNICATIONS ...	Sets the head.
MERGE COPY	Returns to format, then back to text tape at the next Merge code.
A	Sets the capital letter.
MERGE COPY	Returns to format, then back to text tape at the next Merge code.
To ... communications.	Sets the text.
MERGE COPY	The balance of the format is processed.
⟨UF52⟩	Calls Format 52 into use, processing up to the first Merge code, where a switch is made back to the text tape.
1	Sets the number.
MERGE COPY	Returns to format, then back to text tape at the next Merge code.
Interchange Codes	Sets the subhead.
MERGE COPY	The balance of the format is processed.

⟨**UF53**⟩ ..... The same process is followed for the balance of the text tape, the appropriate formats being called for each section of text, since they are used in varying order. Note that all Merge codes on the text tape must match Merge codes in the stored Format Statements.

a
MERGE COPY
Same as IA(1)
MERGE COPY
⟨**UF52**⟩
2
MERGE COPY
Character ... Formats
MERGE COPY
⟨**UF53**⟩
a
MERGE COPY
Bit ... transmission.
MERGE COPY
⟨**UF53**⟩
b
MERGE COPY
Character ... communication.
MERGE COPY
⟨**UF53**⟩
c
MERGE COPY
Character ... communication.
MERGE COPY
⟨**UF52**⟩
3
MERGE COPY
Operating Procedures
MERGE COPY
⟨**UF53**⟩
a
MERGE COPY
Formats ... of:
MERGE COPY
⟨**UF54**⟩
1
MERGE COPY
Data ... networks.
MERGE COPY
⟨**UF54**⟩
2
MERGE COPY
Message ... networks.
MERGE COPY
⟨**UF54**⟩
3
MERGE COPY
Communicating ... systems.
MERGE COPY
⟨**UF54**⟩
4
MERGE COPY
Error ... correction.
MERGE COPY
⟨**UF51**⟩
B
MERGE COPY
To facilitate ... systems.
MERGE COPY
• At this point the appropriate formats may be called for the balance of the outline.
⟨**ET** ..... Ends the take, returning all conditions to the Installation Standard.

There are numerous layouts for outlines. A series of Format Statements simi-

lar to the ones used above may be written for each layout to be used. This is only one manner of setting an outline. The commands ⟨IT (Indent Take), ⟨IH (Indent Hang), and ⟨IX (Indent Text) may also be found useful in outline formats.

CHECK IMPRINT

MISS EMILY SMITH
345 SOUTH WALNUT ST.
HOMETOWN, U.S.A.

101

92-0013
4928

_____ 19 ___

PAY TO THE ORDER OF _____ $ _____

_____ DOLLARS

HOMETOWN OFFICE
FIRST NATIONAL BANK
231 N. MAIN ST., HOMETOWN, U.S.A.

MEMO _____

⑆065200130⑆14320540⑈ 0348 11

MR. OR MRS. PAUL JONES
502 SECOND STREET
HOMETOWN, U.S.A.

300

92-0013
4928

_____ 19 ___

PAY TO THE ORDER OF _____ $ _____

_____ DOLLARS

HOMETOWN OFFICE
FIRST NATIONAL BANK
231 N. MAIN ST., HOMETOWN, U.S.A.

MEMO _____

⑆065200130⑆8241⑈3270⑈ 0348 11

The format setting the above checks stores all data except the check number, the customer's name and address, and the account number. All standing type, including the logotype and bank name and address, is set automatically. The check number would not normally be set at the same time as the balance of the check, but would be imprinted by a counting printing press; it is shown here merely for placement and style.

Font setup: Font 1—Quincy Bold (N.D.); Font 2—Orleans Light (Book); Font 3—Orleans Bold (Book); Font 4—Cambridge MICR.

Format Tape

⟨SF999⟩	This will be a long format, so it is a good idea to clear the format table.
⟨SF1⟩	Stores Format 1.
⟨CC36.9,1,9,19⟩	Specifies a measure of 36 picas 9 points, Font 1, 9 point type, on 19 points of lead (from the last baseline of the last check).
SHIFT	Inserts a baseline rule for use as a cutoff line when the checks are being printed.
WITH CHARACTER	
BASELINE RULE	
QUAD LEFT	Terminates the line.
⟨CC34.6,3,14,30⟩	Specifies a measure of 34 picas 6 points, Font 3, 14 point type, 30 points of lead.
⟨CW17.2⟩	Changes the set width to the equivalent of 17½ point type so the check number will be expanded.
⟨TS21,28.9,30.6⟩	Sets column right margins at 21 picas (name & address); 28 picas 9 points (rule & first two digits of year); 30 picas 6 points (rule for year); the column extending to the end of the measure is for the check number and the bank and Federal Reserve numbers.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first three columns.
QUAD LEFT	
QUAD LEFT	
MERGE COPY	Check number will be taken from text tape.
QUAD CENTER	Centers check number in column.
⟨QT	Terminates the tab line.
⟨CF1,10,6⟩	Specifies Font 1, 10 point type, 6 points of lead.
MARK TAB	The line is marked for tabbing.
MERGE COPY	Customer name will be taken from text tape.
QUAD CENTER	Centers name in column.
⟨QT	Terminates the tab line.
⟨CP8,10⟩	Changes to 8 point type on 10 points of lead.
MARK TAB	The line is marked for tabbing.
MERGE COPY	Street address will be taken from text tape.
QUAD CENTER	Centers street address in column.
⟨QT	Terminates the tab line.
⟨CF3,8,8⟩	Specifies Font 3, 8 point type, 8 points of lead.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first three columns.
QUAD LEFT	
QUAD LEFT	
UNSHIFT	Ensures that the numerics will be lowercase.
92-0013	Sets the bank number centered in the column.
QUAD CENTER	
⟨QT	Terminates the tab line.
⟨CF1,8,2⟩	Specifies Font 1, 8 point type, 2 points of lead.
MARK TAB	The line is marked for tabbing.
MERGE COPY	The city and state will be taken from text tape.
QUAD CENTER	Centers city and state in column.
QUAD CENTER	Tabs over the next two columns.
QUAD CENTER	
SHIFT	Centers under the bank number.
BASELINE RULE (7 times)	
UNSHIFT	
QUAD CENTER	
⟨QT	Terminates the tab line.
⟨CF3,8,6.5⟩	Specifies Font 3, 8 point type, 6½ points of lead.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first three columns.
QUAD LEFT	
QUAD LEFT	
4928	Centers the Federal Reserve number in the column.

QUAD CENTER	
⟨QT	Terminates the line.
⟨CF1,6,3⟩	Specifies Font 1, 6 point type, 3 points of lead.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first column.
SHIFT	Inserts baseline rule for month and day.
WITH CHARACTER	
BASELINE RULE	
UNSHIFT	
⟨CF3,9,3⟩	Specifies Font 3, 9 point type; respecifies 3 points of lead.
19	Sets first two digits of year following baseline rule.
QUAD LEFT	Tabs to next column.
⟨CF1,6⟩	Specifies Font 1, 6 point type.
SHIFT	Inserts baseline rule (for year) in column.
WITH CHARACTER	
BASELINE RULE	
⟨QT	Terminates the column and the tab line.
⟨CC36.3,2,7,16⟩	Specifies a new measure of 36 picas 3 points, Font 2, 7 point type, 16 points of lead.
⟨IT1.9,1.9⟩	Indents 1 pica 9 points from both left and right margins.
⟨TS28.9⟩	Sets a tab at 28 picas 9 points.
MARK TAB	The line is marked for tabbing.
PAY	Sets "PAY TO THE" with Thin Spaces between words.
THIN SPACE	
TO	
THIN SPACE	
THE	
⟨QT	Quads the line left and terminates the tab line.
⟨CL7⟩	Changes the stored leading to 7 points.
MARK TAB	The line is marked for tabbing.
ORDER	Sets "ORDER OF" with Thin Spaces between words.
THIN SPACE	
OF	
⟨CF1,6⟩	Changes to Font 1, 6 point type.
WITH CHARACTER	Inserts baseline rule.
BASELINE RULE	
⟨KC6⟩	Kerns a Thin Space 6 units, making it 3 units of fixed space.
THIN SPACE	
⟨CF3,11,7⟩	Specifies Font 3, 11 point type; respecifies leading of 7 points.
UNSHIFT	Sets the dollar sign.
$	
QUAD LEFT	Terminates column.
⟨CF1,6⟩	Specifies Font 1, 6 point type.
⟨QT	Terminates the column and the tab line.
⟨CL23⟩	Changes stored leading to 23 points.
SHIFT	Inserts baseline rule.
WITH CHARACTER	
BASELINE RULE	
⟨KC6⟩	Inserts a Thin Space, kerned 6 units.
THIN SPACE	
⟨CF2,7,23⟩	Specifies Font 2, 7 point type; respecifies leading of 23 points.
DOLLARS	Sets "DOLLARS" flush right on the line (preceded by baseline rule).
QUAD LEFT	Terminates the line.
⟨CF3,8,17.5⟩	Specifies Font 3, 8 point type, 17½ points of lead.
⟨TS2,3.6,4.3⟩	Sets tabs at 2 picas, 3 picas 6 points, and 4 picas 3 points.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first three columns.
QUAD LEFT	
QUAD LEFT	

HOMETOWN OFFICE	Sets branch name.
⟨**QT**	Quads the copy left in the column and terminates the tab line.
⟨**CP16,8**⟩	Specifies 16 point type on 8 points of lead.
MARK TAB	The line is marked for tabbing.
F	Sets the "F" of the logotype quad right in the column.
QUAD RIGHT	
QUAD RIGHT	Tabs over the next column.
period	Sets the period.
⟨**QT**	Quads the period left and terminates the tab line.
⟨**CP11,3**⟩	Specifies 11 point type on 3 points of lead.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first three columns.
QUAD LEFT	
QUAD LEFT	
FIRST NATIONAL BANK	Sets the bank name.
⟨**QT**	Quads the name left and terminates the tab line.
⟨**CP16,5.5**⟩	Specifies 16 point type on 5½ points of lead.
MARK TAB	The line is marked for tabbing.
N	Sets the "N" of the logotype quad right in the column.
QUAD RIGHT	
⟨**CP28,5.5**⟩	Specifies 28 point type; respecifies the 5½ points of lead.
B	Sets the "B" of the logotype.
⟨**QT**	Quads the letter left and terminates the tab line.
⟨**CP6,2.5**⟩	Specifies 6 point type on 2½ points of lead.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first three columns.
QUAD LEFT	
QUAD LEFT	
UNSHIFT	Sets the bank address.
231 N. MAIN ST., HOMETOWN, U.S.A.	
⟨**QT**	Quads the address left in the column and terminates the tab line.
⟨**TS14.9,18.9**⟩	Sets new tabs at 14 picas 9 points, and 18 picas 9 points.
⟨**CF2,6,16**⟩	Specifies Font 2, 6 point type, 16 points of lead.
MARK TAB	The line is marked for tabbing.
MEMO	Sets "MEMO."
⟨**KC6**⟩	Inserts a Thin Space, kerned 6 units.
THIN SPACE	
⟨**CF1**⟩	Changes to Font 1.
WITH CHARACTER	Fills the balance of the column with baseline rule.
BASELINE RULE	
QUAD LEFT	Terminates the column.
QUAD LEFT	Tabs over the next column.
WITH CHARACTER	Inserts baseline rule in the next column.
BASELINE RULE	
⟨**QT**	Terminates the tab line.
⟨**CF4,10,17**⟩	Specifies Font 4, 10 point type, 17 points of lead.
QUOTE	Sets the bank MICR numbers (still in uppercase) with appropriate access codes.
0652	
EM DASH	
0013	
QUOTE	
MERGE COPY	The customer's account number will be taken from text tape.
COLON	Spaces out the rest of the MICR numbers with En Spaces.
EN SPACE	
EN SPACE	
EN SPACE	
0348	
EN SPACE	
EN SPACE	
EN SPACE	

11
QUAD LEFT ..... Quads the line left.
⟨IT0,0⟩ ..... Cancels the indents so they will not be active when the format loops.
⟨UF1⟩ ..... The format loops and uses itself again.

Note how the overall measure is changed several times within the format. This is not normal practice, but with the tabbing setup in use here it is easier than indenting and takes fewer keystrokes.

Text Tape

⟨UF1⟩ ..... Calls Format 1 into use.
Check number ..... Copy is taken from text tape.
MERGE COPY ..... Returns to format.
Customer name ..... Copy is taken from text tape.
MERGE COPY ..... Returns to format.
Street address ..... Copy is taken from text tape.
MERGE COPY ..... Returns to format.
City & State ..... Copy is taken from text tape.
MERGE COPY ..... Returns to format.
Account number ..... MICR numbers are taken from text tape.
MERGE COPY ..... Format loops and begins again.
Check number ..... Data for the next and all subsequent checks is entered in the same order, merging with the format after each entry. The format never needs to be recalled.
MERGE COPY
Customer name
MERGE COPY
Street address
MERGE COPY
City & State
MERGE COPY
Account number
MERGE COPY
etc. . . .
⟨ET ..... Ends the take and discontinues use of the format.

PAYROLL CHECK STUB WITH INTERMIXABLE FORMATS

PERIOD ENDING	REGULAR HOURS	REGULAR RATE	OVER-TIME HOURS	OVER-TIME RATE	COM-MISSIONS	SALES	PLANT	OFFICE	VACATION PAY				GROSS PAY
CANADA PENSION PLAN	UNEMP. INS.	TOTAL PREMIUM	TAXABLE INCOME	INCOME TAX	MEDI-CARE	GROUP INS.	UNI-FORMS	CASH STATUS		CODE	MISC.	TOTAL DEDUCT.	NET PAY

The formats used to set the above payroll check stub fully utilize the format storage capabilities of the Photomix phototypesetter, Series 8400. *All text* and almost all commands are stored in several series of formats which may be called into use in any desired order, depending on the needs of various customers. Further, since Tab Proportion is used to specify the columns, the entire check stub may be physically altered simply by changing the specifications for measure, point size and leading in only one or two of the formats used. In this example, ruling is not done by the phototypesetter.

There are 14 columns altogether. The order in which the text in the first 10 columns appears is *variable;* the order of the last 4 columns is *fixed.* The variable columns are segregated into two levels: *Level 1,* comprised of ten columns; and *Level 2,* comprised of ten columns. Twenty variable columns are then involved on both levels.

The copy in the two levels of variable columns is set in 6 point type on 6 points of lead, with a set width the equivalent of 5¾ point type. The "NET PAY" column is 7 point type with a set width of 8, expanding the letters and making the type seem much larger than it is.

Note that the vertical spacing of the lines is based on columns of 2 lines. When a column has three lines or only one line, a leading adjustment is made by reversing or adding lead.

Thirty-two formats are used:

Format 100 — Sets up parameters for tabular columns. Sets a Point Mark to indicate Level 1, and a Point Maximum to indicate Level 2.
Level 1 will be returned to with the command ⟨RM
Level 2 will be returned to with the command ⟨RX

NOTE: Formats 1, 2, 3, 4, 5, 6, 10, 11, 12, 13, 14, 15, 16, 17, 18 and 19 require that QUAD LEFT commands be inserted from the Text Tape to tab over columns either blank or already set in the tab line. For instance, if copy is now being set in column 8, insert 7 QUAD LEFT commands followed by a MERGE command.

Format 1 — Sets PERIOD/ENDING
Format 2 — Sets REGULAR/HOURS
Format 3 — Sets REGULAR/RATE
Format 4 — Sets OVER-/TIME/HOURS
Format 5 — Sets OVER-/TIME/RATE
Format 6 — Sets COM-/MISSIONS
Format 7 — Sets SALES
Format 8 — Sets PLANT
Format 9 — Sets OFFICE
Format 10 — Sets VACATION/PAY
Format 11 — Sets CANADA/PENSION/PLAN
Format 12 — Sets UNEMP./INS. *(note use of kerning command)*
Format 13 — Sets TOTAL/PREMIUM
Format 14 — Sets TAXABLE/INCOME
Format 15 — Sets INCOME/TAX
Format 16 — Sets MEDI-/CARE
Format 17 — Sets GROUP/INS.
Format 18 — Sets UNI-/FORMS
Format 19 — Sets CASH/STATUS
Format 20 — In this case tabs over blank column. Text may be stored for this column.
Format 21 — Sets the last 4 fixed columns (11-14) of both Levels 1 & 2.

Format 31 — Positions column 1 in the tab line.
Format 32 — Positions column 2 in the tab line.
Format 33 — Positions column 3 in the tab line.
Format 34 — Positions column 4 in the tab line.
Format 35 — Positions column 5 in the tab line.
Format 36 — Positions column 6 in the tab line.
Format 37 — Positions column 7 in the tab line.
Format 38 — Positions column 8 in the tab line.
Format 39 — Positions column 9 in the tab line.
Format 40 — Positions column 10 in the tab line.

Font setup: Font 1—lightface; no other fonts are used in this application.

Format Tape

⟨**SF999**⟩	The format table is cleared.
⟨**SF100**⟩	Stores Format 100.
⟨**CC45,1,6**⟩	Specifies a measure of 45 picas, Font 1, 6 point type. THE ENTIRE PROPORTIONS OF THE CHECK STUB MAY BE ALTERED BY CHANGING ONLY THESE SPECIFICATIONS, ALONG WITH THE SET WIDTH WHICH FOLLOWS.
⟨**CW5.3**⟩	Specifies that the set width is to be the equivalent of $5\frac{3}{4}$ point type.
⟨**PM** **QUAD LEFT**	Sets a Point Mark (Level 1) followed by Quad Left to specify the baseline (since no text falls on the line, leading is not executed).
⟨**EL26**⟩	Executes 26 points of extra lead.
⟨**PX** **QUAD LEFT**	Sets a Point Maximum (Level 2) followed by Quad Left to specify the baseline. In this application, Point Maximum is being used as an ALTERNATE POINT MARK.
⟨**TP6,6,6,6,6,6,7,7,7,7,3,6,7,7**⟩	Specifies the proportions of the 14 columns, which will be calculated to the nearest point within the specified measure.
SHIFT	All copy for this job will be set in uppercase.
⟨**RM**	Returns to the Point Mark (Level 1).
⟨**UF31**⟩	Calls Format 31 which will position column 1 in the tab line.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF1**⟩	Stores Format 1.
PERIOD	Sets the first line of copy centered in the column.
QUAD CENTER	
MARK TAB	Marks the second line for tabbing.
MERGE COPY	Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
ENDING	Sets the second line of copy centered in the column.
QUAD CENTER	
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF2**⟩	Stores Format 2.
REGULAR	Sets the first line centered in the column.
QUAD CENTER	
MARK TAB	Marks the second line for tabbing.

MERGE COPY ..... Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
HOURS ..... Sets the second line centered in the column.
QUAD CENTER
⟨EF ..... Terminates the format.

• TAPE FEED ..... Isolates the Format Statements.

⟨SF3⟩ ..... Stores Format 3.
REGULAR ..... Sets the first line centered in the column.
QUAD CENTER
MARK TAB ..... Marks the second line for tabbing.
MERGE COPY ..... Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
RATE ..... Sets the second line centered in the column.
QUAD CENTER
⟨EF ..... Terminates the format.

• TAPE FEED ..... Isolates the Format Statements.

⟨SF4⟩ ..... Stores Format 4.
⟨RV3⟩ ..... Reverses 3 points (1/2 line space) since three lines must be set in the column.
OVER ..... Sets the first line centered in the column.
UNSHIFT
hyphen
QUAD CENTER
MARK TAB ..... Marks the second line for tabbing.
MERGE COPY ..... Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
SHIFT ..... Sets the second line centered in the column.
TIME
QUAD CENTER
MARK TAB ..... Marks the third line for tabbing.
MERGE COPY ..... Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
HOURS ..... Sets the third line centered in the column.
QUAD CENTER
⟨EF ..... Terminates the format.

• TAPE FEED ..... Isolates the Format Statements.

⟨SF5⟩ ..... Stores Format 5.
⟨RV3⟩ ..... Reverses 3 points (1/2 line space) since three lines must be set in the column.
OVER ..... Sets the first line centered in the column.
UNSHIFT
hyphen
QUAD CENTER
MARK TAB ..... Marks the second line for tabbing.
MERGE COPY ..... Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
SHIFT ..... Sets the second line centered in the column.
TIME
QUAD CENTER
MARK TAB ..... Marks the third line for tabbing.
MERGE COPY ..... Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
RATE ..... Sets the third line centered in the column.
QUAD CENTER
⟨EF ..... Terminates the format.

Format Statements

• **TAPE FEED**	Isolates the Format Statements.
⟨**SF6**⟩	Stores Format 6.
COM	Sets the first line centered in the column.
UNSHIFT	
hyphen	
QUAD CENTER	
MARK TAB	Marks the second line for tabbing.
MERGE COPY	Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
SHIFT	Sets the second line centered in the column.
MISSIONS	
QUAD CENTER	
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF7**⟩	Stores Format 7.
⟨**EL3**⟩	Executes 3 points of extra lead (1/2 line space) because only one line will be set in this column.
SALES	Centers the line in the column.
QUAD CENTER	
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF8**⟩	Stores Format 8.
⟨**EL3**⟩	Executes 3 points of extra lead (1/2 line space) because only one line will be set in this column.
PLANT	Centers the line in the column.
QUAD CENTER	
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF9**⟩	Stores Format 9.
⟨**EL3**⟩	Executes 3 points of extra lead (1/2 line space) because only one line will be set in this column.
OFFICE	Centers the line in the column.
QUAD CENTER	
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF10**⟩	Stores Format 10.
VACATION	Sets the first line centered in the column.
QUAD CENTER	
MARK TAB	Marks the second line for tabbing.
MERGE COPY	Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
PAY	Sets the second line centered in the column.
QUAD CENTER	
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF11**⟩	Stores Format 11.
⟨**RV3**⟩	Reverses 3 points (1/2 line space) since three lines must be set in the column.
CANADA	Sets the first line centered in the column.
QUAD CENTER	
MARK TAB	Marks the second line for tabbing.
MERGE COPY	Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.

PENSION	Sets the second line centered in the column.
QUAD CENTER	
MARK TAB	Marks the third line for tabbing.
MERGE COPY	Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
PLAN	Sets the third line centered in the column.
QUAD CENTER	
⟨EF	Terminates the format.
• TAPE FEED	Isolates the Format Statements.
⟨SF12⟩	Stores Format 12.
UNEM	Sets the first line centered in the column. The letter "P" is kerned by 7 units, so the period will be closer to the vertical stroke of the character.
⟨KC7⟩	
P.	
QUAD CENTER	
MARK TAB	Marks the second line for tabbing.
MERGE COPY	Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
INS.	Sets the second line centered in the column.
QUAD CENTER	
⟨EF	Terminates the format.
• TAPE FEED	Isolates the Format Statements.
⟨SF13⟩	Stores Format 13.
TOTAL	Sets the first line centered in the column.
QUAD CENTER	
MARK TAB	Marks the second line for tabbing.
MERGE COPY	Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
PREMIUM	Sets the second line centered in the column.
QUAD CENTER	
⟨EF	Terminates the format.
• TAPE FEED	Isolates the Format Statements.
⟨SF14⟩	Stores Format 14.
TAXABLE	Sets the first line centered in the column.
QUAD CENTER	
MARK TAB	Marks the second line for tabbing.
MERGE COPY	Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
INCOME	Sets the second line centered in the column.
QUAD CENTER	
⟨EF	Terminates the format.
• TAPE FEED	Isolates the Format Statements.
⟨SF15⟩	Stores Format 15.
INCOME	Sets the first line centered in the column.
QUAD CENTER	
MARK TAB	Marks the second line for tabbing.
MERGE COPY	Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
TAX	Sets the second line centered in the column.
QUAD CENTER	
⟨EF	Terminates the format.
• TAPE FEED	Isolates the Format Statements.
⟨SF16⟩	Stores Format 16.
MEDI	Sets the first line centered in the column.
UNSHIFT	

hyphen
QUAD CENTER
MARK TAB ..... Marks the second line for tabbing.
MERGE COPY ..... Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
SHIFT ..... Sets the second line centered in the column.
CARE
QUAD CENTER
⟨EF ..... Terminates the format.

• **TAPE FEED** ..... Isolates the Format Statements.

⟨SF17⟩ ..... Stores Format 17.
GROUP ..... Sets the first line centered in the column.
QUAD CENTER
MARK TAB ..... Marks the second line for tabbing.
MERGE COPY ..... Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
INS. ..... Sets the second line centered in the column.
QUAD CENTER
⟨EF ..... Terminates the format.

• **TAPE FEED** ..... Isolates the Format Statements.

⟨SF18⟩ ..... Stores Format 18.
UNI ..... Sets the first line centered in the column.
UNSHIFT
hyphen
QUAD CENTER
MARK TAB ..... Marks the second line for tabbing.
MERGE COPY ..... Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
SHIFT ..... Sets the second line centered in the column.
FORMS
QUAD CENTER
⟨EF ..... Terminates the format.

• **TAPE FEED** ..... Isolates the Format Statements.

⟨SF19⟩ ..... Stores Format 19.
CASH ..... Sets the first line centered in the column.
QUAD CENTER
MARK TAB ..... Marks the second line for tabbing.
MERGE COPY ..... Quad Left commands will be inserted from text tape to tab over previous columns in the tab line.
STATUS ..... Sets the second line centered in the column.
QUAD CENTER
⟨EF ..... Terminates the format.

• **TAPE FEED** ..... Isolates the Format Statements.

⟨SF20⟩ ..... Stores Format 20.
QUAD LEFT ..... Tabs over a blank column. This column may contain text, if desired.
⟨EF ..... Terminates the format.

• **TAPE FEED** ..... Isolates the Format Statements.

⟨SF21⟩ ..... Stores Format 21.
⟨RM ..... Returns to Point Mark (Level 1).
⟨TP64,3,6,7,7⟩ ..... States the first 10 variable columns as one proportion, and respecifies the proportions for the last four fixed columns.
MARK TAB ..... The line is marked for tabbing.

QUAD LEFT ..... Tabs over the first four columns.
QUAD LEFT
QUAD LEFT
QUAD LEFT
GROSS ..... Sets the first line centered in the column.
QUAD CENTER
MARK TAB ..... Marks the second line for tabbing.
QUAD LEFT ..... Tabs over the first four columns.
QUAD LEFT
QUAD LEFT
QUAD LEFT
PAY ..... Sets the second line centered in the column.
QUAD CENTER
⟨**QT** ..... Terminates the tab line.
⟨**RX** ..... Returns to Point Maximum (Level 2).
MARK TAB ..... Marks the first line for tabbing.
QUAD LEFT ..... Tabs over column 1.
⟨**EL3**⟩ ..... Executes 3 points of extra lead (½ line space) because only one line will be set in each of the next two columns.
CODE ..... Centers copy in column 2.
QUAD CENTER
MISC. ..... Centers copy in column 3.
QUAD CENTER
⟨**RV3**⟩ ..... Reverses 3 points (the ½ line space which was leaded above) because two lines will be set in column 4.
TOTAL ..... Centers first line of copy in column 4.
QUAD CENTER
MARK TAB ..... Marks the second line for tabbing.
QUAD LEFT ..... Tabs over the first three columns.
QUAD LEFT
QUAD LEFT
DEDUC ..... Sets the second line centered in the column. The letter "T" is kerned by 7 units, so the period will be closer to the vertical stroke of the character.
⟨**KC7**⟩
T.
QUAD CENTER
⟨**RV7**⟩ ..... Reverses 7 points to set the first line of column 5.
⟨**CP7**⟩ ..... Specifies 7 point type.
⟨**CW8**⟩ ..... Specifies that the set width is to be the equivalent of 8 point type.
NET ..... Centers the first line of copy in column 5.
QUAD CENTER
MARK TAB ..... Marks the second line for tabbing.
QUAD LEFT ..... Tabs over the first four columns.
QUAD LEFT
QUAD LEFT
QUAD LEFT
PAY ..... Centers the second line of copy in column 5.
QUAD CENTER
⟨**QT** ..... Terminates the tab line.
⟨**EF** ..... Terminates the format.

• **TAPE FEED** ..... Isolates the Format Statements.

⟨**SF31**⟩ ..... Stores Format 31.
MARK TAB ..... The line is marked for tabbing, to set column 1.
⟨**EF** ..... Terminates the format.

• **TAPE FEED** ..... Isolates the Format Statements.

⟨**SF32**⟩ ..... Stores Format 32.
MARK TAB ..... The line is marked for tabbing.
QUAD LEFT ..... Tabs over the first column, to set column 2.
⟨**EF** ..... Terminates the format.

• **TAPE FEED**	Isolates the Format Statements.
⟨**SF33**⟩	Stores Format 33.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first two columns, to set column 3.
QUAD LEFT	
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF34**⟩	Stores Format 34.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first three columns, to set column 4.
QUAD LEFT	
QUAD LEFT	
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF35**⟩	Stores Format 35.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first four columns, to set column 5.
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF36**⟩	Stores Format 36.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first five columns, to set column 6.
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF37**⟩	Stores Format 37.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first six columns, to set column 7.
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.
⟨**SF38**⟩	Stores Format 38.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first seven columns, to set column 8.
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
⟨**EF**	Terminates the format.
• **TAPE FEED**	Isolates the Format Statements.

⟨SF39⟩	Stores Format 39.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first eight columns, to set column 9.
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
⟨EF	Terminates the format.
• TAPE FEED	Isolates the Format Statements.
⟨SF40⟩	Stores Format 40.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first nine columns, to set column 10.
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
⟨EF	Terminates the format.
• TAPE FEED	Separates the last Format Statement from the End-of-Take command which follows.
⟨ET	Ends the storing of formats and stops the reader.

The following coding on the text tape will set the sample on page 126. Note that it is necessary to return to the appropriate level (1 or 2) before each column is positioned in the tab line, because varying amounts of leading are executed in the setting of the individual columns.

Text Tape (First Version)

⟨UF100⟩	Calls Format 100 into use. At the end of Format 100, Format 31 is automatically called to position column 1 on Level 1.
⟨UF1⟩	Calls Format 1 to set column 1.
MERGE COPY	Since setting is taking place in column 1, an immediate return is made to the format without tabbing.
⟨RM	Returns to Point Mark: Level 1.
⟨UF32⟩	Calls Format 32 to position column 2.
⟨UF2⟩	Calls Format 2 to set column 2.
QUAD LEFT	Tabs over column 1.
MERGE COPY	Returns to format to set second line.
⟨RM	Returns to Point Mark: Level 1.
⟨UF33⟩	Calls Format 33 to position column 3.
⟨UF3⟩	Calls Format 3 to set column 3.
QUAD LEFT	Tabs over the first two columns and returns to format
QUAD LEFT	to set second line.
MERGE COPY	
⟨RM	Returns to Point Mark: Level 1.
⟨UF34⟩	Calls Format 34 to position column 4.
⟨UF4⟩	Calls Format 4 to set column 4.
QUAD LEFT	Tabs over the first three columns and returns to for-
QUAD LEFT	mat to set second line.
QUAD LEFT	

```
MERGE COPY
QUAD LEFT ..... Tabs over the first three columns and returns to for-
QUAD LEFT       mat to set third line.
QUAD LEFT
MERGE COPY
⟨RM ..... Returns to Point Mark: Level 1.
⟨UF35⟩ ..... Calls Format 35 to position column 5.
⟨UF5⟩ ..... Calls Format 5 to set column 5.
QUAD LEFT ..... Tabs over the first four columns and returns to for-
QUAD LEFT       mat to set second line.
QUAD LEFT
QUAD LEFT
MERGE COPY
QUAD LEFT ..... Tabs over the first four columns and returns to for-
QUAD LEFT       mat to set third line.
QUAD LEFT
QUAD LEFT
MERGE COPY
⟨RM ..... Returns to Point Mark: Level 1.
⟨UF36⟩ ..... Calls Format 36 to position column 6.
⟨UF6⟩ ..... Calls Format 6 to set column 6.
QUAD LEFT ..... Tabs over the first five columns and returns to format
QUAD LEFT       to set second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY
⟨RM ..... Returns to Point Mark: Level 1.
⟨UF37⟩ ..... Calls Format 37 to position column 7.
⟨UF7⟩ ..... Calls Format 7 to set column 7.
⟨RM ..... Returns to Point Mark: Level 1.
⟨UF38⟩ ..... Calls Format 38 to position column 8.
⟨UF8⟩ ..... Calls Format 8 to set column 8.
⟨RM ..... Returns to Point Mark: Level 1.
⟨UF39⟩ ..... Calls Format 39 to position column 9.
⟨UF9⟩ ..... Calls Format 9 to set column 9.
⟨RM ..... Returns to Point Mark: Level 1.
⟨UF40⟩ ..... Calls Format 40 to position column 10.
⟨UF10⟩ ..... Calls Format 10 to set column 10.
QUAD LEFT ..... Tabs over the first nine columns and returns to for-
QUAD LEFT       mat to set second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY
⟨QT ..... Terminates Level 1 tab line.
⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF31⟩ ..... Calls Format 31 to position column 1.
⟨UF11⟩ ..... Calls Format 11 to set column 1.
MERGE COPY ..... Since setting is taking place in column 1, immediate
MERGE COPY      returns are made to the format, without tabbing, to
                set the second and third lines.
⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF32⟩ ..... Calls Format 32 to position column 2.
⟨UF12⟩ ..... Calls Format 12 to set column 2.
QUAD LEFT ..... Tabs over the first column and returns to format to
MERGE COPY      set second line.
⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF33⟩ ..... Calls Format 33 to position column 3.
⟨UF13⟩ ..... Calls Format 13 to set column 3.
```

QUAD LEFT ..... Tabs over the first two columns and returns to format to set second line.
QUAD LEFT
MERGE COPY

⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF34⟩ ..... Calls Format 34 to position column 4.
⟨UF14⟩ ..... Calls Format 14 to set column 4.
QUAD LEFT ..... Tabs over the first three columns and returns to format to set second line.
QUAD LEFT
QUAD LEFT
MERGE COPY

⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF35⟩ ..... Calls Format 35 to position column 5.
⟨UF15⟩ ..... Calls Format 15 to set column 5.
QUAD LEFT ..... Tabs over the first four columns and returns to format to set second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY

⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF36⟩ ..... Calls Format 36 to position column 6.
⟨UF16⟩ ..... Calls Format 16 to set column 6.
QUAD LEFT ..... Tabs over the first five columns and returns to format to set second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY

⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF37⟩ ..... Calls Format 37 to position column 7.
⟨UF17⟩ ..... Calls Format 17 to set column 7.
QUAD LEFT ..... Tabs over the first six columns and returns to format to set second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY

⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF38⟩ ..... Calls Format 38 to position column 8.
⟨UF18⟩ ..... Calls Format 18 to set column 8.
QUAD LEFT ..... Tabs over the first seven columns and returns to format to set second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY

⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF39⟩ ..... Calls Format 39 to position column 9.
⟨UF19⟩ ..... Calls Format 19 to set column 9.
QUAD LEFT ..... Tabs over the first eight columns and returns to format to set a second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY

⟨UF21⟩ ..... Calls Format 21 to set the last four fixed columns of both Levels 1 and 2.
⟨ET ..... Ends the take and cancels the use of all formats.

NOTE: Format 20 was not used on the preceding text tape because column 10 of Level 2 is blank. Format 20, as was stated earlier, could contain another column of text. Also, extra formats could be written containing variable columns of data, out of which only 20 or fewer would be used for a particular job.

The following sample was set simply by calling the formats in a different order.

PERIOD ENDING	REGULAR HOURS	OVER-TIME HOURS	REGULAR RATE	OVER-TIME RATE	VACATION PAY	COM-MISSIONS	SALES	PLANT	OFFICE				GROSS PAY
	TAXABLE INCOME	INCOME TAX	CANADA PENSION PLAN	UNEMP. INS.	GROUP INS.	TOTAL PREMIUM	MEDI-CARE	UNI-FORMS	CASH STATUS	CODE	MISC.	TOTAL DEDUCT.	NET PAY

Format 100, which states the Tab Proportions, has not been altered. Since the proportions of the columns are such that they will accommodate a specified number of digits (more for some headings than others), it is suggested that several versions of Format 100 be written with Tab Proportion commands which will suit the text-column order being used.

It will be seen that it is important to know how many lines are set by each text-column format, so the proper tabbing can be executed.

Text Tape (Second Version—rearranges the text-columns)

⟨UF100⟩ ..... Calls Format 100 into use. At the end of Format 100, Format 31 is automatically called to position column 1 on Level 1.
⟨UF1⟩ ..... Calls Format 1 to set column 1.
MERGE COPY ..... Since setting is taking place in column 1, an immediate return is made to the format without tabbing.
⟨RM ..... Returns to Point Mark: Level 1.
⟨UF32⟩ ..... Calls Format 32 to position column 2.
⟨UF2⟩ ..... Calls Format 2 to set column 2.
QUAD LEFT ..... Tabs over column 1 and returns to format to set second line.
MERGE COPY
⟨RM ..... Returns to Point Mark: Level 1.

Here the order of text-columns changes.

⟨UF33⟩ ..... Calls Format 33 to position column 3.
⟨UF4⟩ ..... Calls Format 4 to set column 3.
QUAD LEFT ..... Tabs over the first two columns and returns to format
QUAD LEFT to set second line.
MERGE COPY
QUAD LEFT ..... Tabs over the first two columns and returns to format to set third line.
QUAD LEFT
MERGE COPY
⟨RM ..... Returns to Point Mark: Level 1.
⟨UF34⟩ ..... Calls Format 34 to position column 4.
⟨UF3⟩ ..... Calls Format 3 to set column 4.
QUAD LEFT ..... Tabs over the first three columns and returns to format to set second line.
QUAD LEFT
QUAD LEFT
MERGE COPY
⟨RM ..... Returns to Point Mark: Level 1.
⟨UF35⟩ ..... Calls Format 35 to position column 5.
⟨UF5⟩ ..... Calls Format 5 to set column 5.

QUAD LEFT	Tabs over the first four columns and returns to format to set second line.
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
MERGE COPY	
QUAD LEFT	Tabs over the first four columns and returns to format to set third line.
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
MERGE COPY	
⟨RM	Returns to Point Mark: Level 1.
⟨UF36⟩	Calls Format 36 to position column 6.
⟨UF10⟩	Calls Format 10 to set column 6.
QUAD LEFT	Tabs over the first five columns and returns to format to set second line.
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
MERGE COPY	
⟨RM	Returns to Point Mark: Level 1.
⟨UF37⟩	Calls Format 37 to position column 7.
⟨UF6⟩	Calls Format 6 to set column 7.
QUAD LEFT	Tabs over the first six columns and returns to format to set second line.
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
QUAD LEFT	
MERGE COPY	
⟨RM	Returns to Point Mark: Level 1.
⟨UF38⟩	Calls Format 38 to position column 8.
⟨UF7⟩	Calls Format 7 to set column 8.
⟨RM	Returns to Point Mark: Level 1.
⟨UF39⟩	Calls Format 39 to position column 9.
⟨UF8⟩	Calls Format 8 to set column 9.
⟨RM	Returns to Point Mark: Level 1.
⟨UF40⟩	Calls Format 40 to position column 10.
⟨UF9⟩	Calls Format 9 to set column 10.
⟨QT	Terminates Level 1 tab line.
⟨RX	Returns to Point Maximum: Level 2.
⟨UF32⟩	Calls Format 32 to position column 2; column 1 is blank, so it is ignored.
⟨UF14⟩	Calls Format 14 to set column 2.
QUAD LEFT	Tabs over the first column and returns to format to set second line.
MERGE COPY	
⟨RX	Returns to Point Maximum: Level 2.
⟨UF33⟩	Calls Format 33 to position column 3.
⟨UF15⟩	Calls Format 15 to set column 3.
QUAD LEFT	Tabs over the first two columns and returns to format to set second line.
QUAD LEFT	
MERGE COPY	
⟨RX	Returns to Point Maximum: Level 2.
⟨UF34⟩	Calls Format 34 to position column 4.
⟨UF11⟩	Calls Format 11 to set column 4.
QUAD LEFT	Tabs over the first three columns and returns to format to set second line.
QUAD LEFT	
QUAD LEFT	
MERGE COPY	
QUAD LEFT	Tabs over the first three columns and returns to format to set third line.
QUAD LEFT	
QUAD LEFT	
MERGE COPY	
⟨RX	Returns to Point Maximum: Level 2.
⟨UF35⟩	Calls Format 35 to position column 5.

```
⟨UF12⟩ ..... Calls Format 12 to set column 5.
QUAD LEFT ..... Tabs over the first four columns and returns to for-
QUAD LEFT       mat to set second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY
⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF36⟩ ..... Calls Format 36 to position column 6.
⟨UF17⟩ ..... Calls Format 17 to set column 6.
QUAD LEFT ..... Tabs over the first five columns and returns to format
QUAD LEFT       to set second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY
⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF37⟩ ..... Calls Format 37 to position column 7.
⟨UF13⟩ ..... Calls Format 13 to set column 7.
QUAD LEFT ..... Tabs over the first six columns and returns to format
QUAD LEFT       to set second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY
⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF38⟩ ..... Calls Format 38 to position column 8.
⟨UF16⟩ ..... Calls Format 16 to set column 8.
QUAD LEFT ..... Tabs over the first seven columns and returns to for-
QUAD LEFT       mat to set second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY
⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF39⟩ ..... Calls Format 39 to position column 9.
⟨UF18⟩ ..... Calls Format 18 to set column 9.
QUAD LEFT ..... Tabs over the first eight columns and returns to for-
QUAD LEFT       mat to set second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY
⟨RX ..... Returns to Point Maximum: Level 2.
⟨UF40⟩ ..... Calls Format 40 to position column 10.
⟨UF19⟩ ..... Calls Format 19 to set column 10.
QUAD LEFT ..... Tabs over the first nine columns and returns to for-
QUAD LEFT       mat to set second line.
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
QUAD LEFT
MERGE COPY
⟨UF21⟩ ..... Calls Format 21 to set the last four fixed columns of
                both Levels 1 and 2.
⟨ET ..... Ends the take and cancels the use of all formats.
```

RACING FORM

3rd RACE

MAIDEN CLAIMING
PURSE $1,200. THREE AND FOUR YEAR OLD MAIDENS. Three year olds 113 lbs. Four year olds 120 lbs. Claiming Price $2,500.
ONE MILE AND SEVENTY YARDS

Track Record 1:41 — DEEP THOUGHT (4). January 21, 1956. 116 lbs.

USE THESE NUMBERS FOR BUYING PARI MUTUEL TICKETS

	OWNER	TRAINER	JOCKEY and Morning Line
1	R. VAN WORP JR. Lime Green, Royal Blue Sash, White Cuffs on Sleeves. **PHONE HOME** 113 Bg3 Wide Margin—Miss Market	OWNER	6 Nick Fernicola
2	FLYING "G" FARMS CO. Pink and Black Flying "G" **THUNDER DUST** 120 Bg4 Beinqueux—Wince	G. ROBSON	3 Larry Hunt
3	DIXIE McKINLEY White, Red and Blue Hoops **SHE IS READY** 103 Bf3 Keep Counting—Miss Asterus	MARY SUE LEMAY	20 Tommy Lopez
4	DOLCE VITA FARM Red, Green "DV" on White Heart **FIRST CONQUEST** 120 Bc4 But First—Repeat	A. C. CHESTNUT	7-2 Tommy Sisum
5	S. A. ALEXANDER Orange, Blue Circled Sash. Orange Dots on Blue Sleeves. **DEBBIE'S NOTE** 115 Cnf4 Have None—Strike a Note	H. R. CAPLE	20 Eddie Hizo
6	NORMA A. HENRY Pink, Black Sash. Pink Brand on Black Sleeves. **CHARMING MISS** 108 Bf4 Revogue—Miss Chicago	J. D. PRICE	15 Gene St. Leon
7	H. PHILLIPS Blue, White Circled "PN" White Bars on Sleeves. **GAINS RULLAH** 120 Bg4 World Traveler—She Gains	OWNER	5-2 Ramon Perez
8	ED ECHARDT JR. Red. Red Bars on White Sleeves. **LOOSE N LIMBER** 108 Dk B or Brf3 Col. William P—Vicki Woerner	S. E. BRANHAM	9-2 Steve Miller

This Racing Form is set with two stored Format Statements:

Format 63 — Sets all of the heading information through the rule preceding the listing of the first horse. Data that is not variable is stored in the format. The headings immediately preceding the listing of the first horse ("Use these numbers . . ." through the baseline rule) are all stored. Format 64 is addressed automatically at the end of this format.

Format 64 — Sets the individual horse listings. The format loops so that all items may be set without recalling the format.

Font setup: Font 1—Orleans Light (Book); Font 2—Orleans Demi-Bold (Book); Font 3—Geneva Bold (News Display); Font 4—Mathematical/ Technical No. 1 (used to set the down arrow).

Format Tape

⟨SF63⟩	Stores Format 63.
⟨CC20,2,36,36⟩	Specifies measure of 20 picas, Font 2, 36 point type, 36 points of lead.
UNSHIFT	Escapes the race number (1 digit) in the No Flash mode; the number will be set on the *next* baseline.
⟨NF	
0	
⟨XF	Restores normal flashing.
⟨CP18⟩	Specifies 18 point type.
MERGE COPY	Takes the variable abbreviation *st, nd,* or *th* from the text tape.
SPACE BAR	Sets the word "RACE," which is constant.
SHIFT	
RACE	
UNSHIFT	
QUAD LEFT	Quads the line left and terminates it.
⟨CP36,3⟩	Changes back to 36 point type to set the number and specifies leading of 3 points.
MERGE COPY	The number of the race (1 digit) will be taken from the text tape.
QUAD LEFT	Quads the number left and terminates the line.
⟨EL14⟩	Executes 14 points of extra lead.
⟨CF1,7,7⟩	Specifies Font 1, 7 point type, 7 points of lead.
MERGE COPY	The introductory paragraph, with appropriate line terminators, will be taken from text tape.
⟨CF3,6,2.5⟩	Specifies Font 3, 6 point type, 2½ points of lead.
SHIFT	Sets one baseline rule (en dash) without escaping.
⟨NE	*See note below.
BASELINE RULE	
WITH CHARACTER	Sets baseline rule for the full measure.
BASELINE RULE	
UNSHIFT	
QUAD LEFT	Terminates the line.
⟨CF1,7,7⟩	Specifies Font 1, 7 point type, 7 points of lead.
MERGE COPY	Takes "Track Record" line from the text tape.
⟨JU	Force justifies the line.
⟨CF3,6,2.5⟩	Specifies Font 3, 6 point type, 2½ points of lead.
SHIFT	Sets baseline rule for the full measure. *See note below.
⟨NE	
BASELINE RULE	
WITH CHARACTER	
BASELINE RULE	
UNSHIFT	
QUAD LEFT	Terminates the line.
⟨CF4,36,14⟩	Specifies Font 4, 36 point type, 14 points of lead.
⟨NF	Escapes the arrow without flashing, then restores flashing.
PI	
0	
⟨XF	
⟨CF2,8,14⟩	Specifies Font 2, 8 point type, 14 points of lead.
SHIFT	Sets the bold instruction to the right of the arrow.
USE THESE NUMBERS FOR BUYING PARI MUTUEL TICKETS	
⟨JU	Force justifies the line.
⟨CF1,7,12⟩	Specifies Font, 1, 7 point type, 12 points of lead.

* Baseline rules (en dashes) are set from the right margin. As many are set as will fit in the measure (depending on the point size used) and if any space is left over where a dash will not fit, that space is left blank against the left margin. For this reason, when the measure is to be filled with a rule (dashes), a single dash is flashed but not escaped against the left margin to fill this leftover space. The overlapping is not visible.

The rest of the constant heads are set.

JOCKEY
THIN SPACE
UNSHIFT
and
QUAD RIGHT ..... Quads the line right.
⟨CL3⟩ ..... Specifies 3 points of lead.
⟨TS3.6,8,14.6⟩ ..... Specifies the tab columns for the arrow and the rest of the heads.
MARK TAB ..... The line is marked for tabbing.
QUAD LEFT ..... Tabs over the first column (arrow).
SHIFT
OWNER
QUAD LEFT ..... Quads the word left and tabs to the next column.
TRAINER
QUAD RIGHT ..... Quads the word right.
⟨QT ..... Terminates the tab line.
⟨CF4,36,4⟩ ..... Specifies Font 4, 36 point type, 4 points of lead.
PI ..... Sets the arrow, a pi character, flush left.
0
QUAD LEFT
⟨CF1,7,0⟩ ..... Specifies Font 1, 7 point type, zero lead.
Morning Line
QUAD RIGHT ..... Quads the line right on the measure.
⟨CF3,6,2.5⟩ ..... Specifies Font 3, 6 point type, 2½ points of lead.
EM SPACE ..... Spaces 1½ picas over the arrow (each Em Space is equal to one-half pica in 6 point).
EM SPACE
EM SPACE
SHIFT ..... Sets baseline rule for the balance of the measure.
WITH CHARACTER
BASELINE RULE
UNSHIFT
QUAD LEFT ..... Terminates the line.
⟨UF64⟩ ..... Calls Format 64 to set the horse listings.

● **TAPE FEED** ..... Isolates the Format Statements.

⟨SF64⟩ ..... Stores Format 64.
⟨CF1,7,8⟩ ..... Specifies Font 1, 7 point type, 8 points of lead.
⟨TS2.3,16,17.9⟩ ..... Specifies the tabular columns for the text.
MARK TAB ..... The line is marked for tabbing.
QUAD LEFT ..... Tabs over the first column.
MERGE COPY ..... The owner's name will be taken from the text tape, with *Thin Spaces* inserted between words.
SPACE BAR ..... The only Space Bar in the column will permit expansion at this point.
MERGE COPY ..... The trainer's name will be taken from the text tape, with *Thin Spaces* inserted between words.
⟨JU ..... The line is force justified: the owner's name will be flush left in the column, and the trainer's name flush right, the Space Bar being the expansion point to justify the line.
QUAD LEFT ..... Tabs over the next column, which will always be blank.
⟨CF2,9,8⟩ ..... Changes to Font 2 and 9 point type; respecifies the 8 points of lead for the tab line.
MERGE COPY ..... The Morning Line number will be taken from text tape.
QUAD RIGHT ..... Quads the number right.
⟨QT ..... Terminates the tab line.
⟨CF1,6,6⟩ ..... Specifies Font 1, 6 point type, 6 points of lead.
MARK TAB ..... The line is marked for tabbing.
QUAD LEFT ..... Tabs over the first column.
MERGE COPY ..... Takes the first line of description of the jockey's silks from text tape.

QUAD CENTER	Centers the line in the column.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first column.
MERGE COPY	Takes the second line of description of the jockey's silks from text tape.
QUAD CENTER	Quads the line center, tabbing to the next column.
QUAD CENTER	Tabs over the blank column.
MERGE COPY	Takes the jockey's first name from text tape.
MARK TAB	Quads the name left in the column, terminates the tab line, and initiates a new tab line.
QUAD LEFT	Tabs over the first three columns.
QUAD LEFT	
QUAD LEFT	
MERGE COPY	Takes the jockey's surname from text tape.
⟨QT	Quads the name left in the column and terminates the tab line.
⟨CF2,14,9⟩	Specifies Font 2, 14 point type, 9 points of lead.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first column.
MERGE COPY	Horse's name, with *En Spaces* between words, is taken from text tape.
SPACE BAR	The only Space Bar in the column will permit expansion at this point.
MERGE COPY	The horse's number will be taken from text tape.
⟨JU	The line is force justified: the horse's name will be flush left in the column, and the number flush right, the Space Bar being the expansion point to justify the line.
⟨QT	Terminates the tab line.
⟨CP36,7⟩	Specifies 36 point type and 7 points of lead.
MARK TAB	The line is marked for tabbing.
MERGE COPY	The Pari Mutuel number will be taken from the text tape.
QUAD LEFT	Quads the number left and tabs to the next column.
⟨CF1,6⟩	Specifies Font 1 and 6 point type.
MERGE COPY	The horse's lineage is taken from text tape.
⟨QT	Quads the line left in the column and terminates the tab line.
⟨CF3,6,3.5⟩	Specifies Font 3, 6 point type, 3½ points of lead.
SHIFT	Sets baseline rule for the full measure. *See note below.
⟨NE	
BASELINE RULE	
WITH CHARACTER	
BASELINE RULE	
UNSHIFT	
QUAD LEFT	Terminates the line.
⟨UF64⟩	The format loops, ready to set the next horse listing.

Text Tape

⟨UF63⟩	Calls Format 63 into use.
rd	Sets the abbreviation and returns to format.
MERGE COPY	
3	Sets the race number and returns to format.
MERGE COPY	
MAIDEN CLAIMING	Sets introductory paragraph, with appropriate line
QUAD CENTER	terminators.

* Baseline rules (en dashes) are set from the right margin. As many are set as will fit in the measure (depending on the point size used) and if any space is left over where a dash will not fit, that space is left blank against the left margin. For this reason, when the measure is to be filled with a rule (dashes), a single dash is flashed but not escaped against the left margin to fill this leftover space. The overlapping is not visible.

PURSE ... Price $2,500.
QUAD LEFT
ONE MILE AND SEVENTY YARDS
QUAD RIGHT
MERGE COPY ..... Returns to format to set the baseline rule.
Track ... 116 lbs. ..... Sets the Track Record line.
MERGE COPY ..... Returns to format. The headings will be set, and Format 64 will be called.

The following coding is used for each horse listing, merging with the format between data entries.

Owner name ..... Words separated with *Thin Spaces.*
MERGE COPY
Trainer name ..... Words separated with *Thin Spaces.*
MERGE COPY
Morning Line number
MERGE COPY
First line description of jockey's silks
MERGE COPY
Second line description of jockey's silks
MERGE COPY
Jockey's first name
MERGE COPY
Jockey's surname
MERGE COPY
Horse's name ..... Words separated with *En Spaces.*
MERGE COPY
Horse's number
MERGE COPY
Pari Mutuel number
MERGE COPY
Horse's lineage data
MERGE COPY ..... The format loops, and is ready to set next listing.
... Begin next listing with owner's name ...
⟨**ET** ..... Ends the take and discontinues use of the format.

SPHERING
Fitting Type to Shapes

THIS ABSOLUTE
power over land and sea, this
sovereign sway I hold o'er all the world,
this grandeur without limit, this high rank which
has already cost such suffering—Yes, all which in my
noble eminence calls admiration from a flattering court, is
but a shining bauble, dazzling first, but losing all attraction once
enjoyed. Ambition palls when once it is accomplished; and an opposing
passion takes its place. So now our spirit, having striven ever to the last
breath to gain some certain end, turns on itself, with nothing more to conquer,
and having reached the peak would fain descend. I longed for empire, and I won
to it, but while I longed for it, I knew it not: Possessing it, I found that all its charms
turned into heavy cares and constant fears. A thousand secret foes deserving death, no
pleasure without trouble, no repose. Sulla before me held this power supreme: Great
Julius, my father, too, enjoyed it. But with what different eyes they looked upon it. One
gave it up, the other would have held it. One, cruel and barbarous, died well beloved, like
any worthy citizen, at home; the other, ever gentle, met his end in the senate house by an as-
sassin's hand. These fresh examples ought to serve to teach me, if solely by example one may
learn. One beckons me to follow, one brings fear; yet an example often proves to be a mirror of
deception, and the plan of destiny which so disturbs our thoughts not always written in the cho-
sen steps. Now one is broken and another saved, and what destroys one man preserves an-
other. There, my good friends, you see what troubles me. You, who replace Agrippa and
Mæcenas, take o'er my soul the power which was theirs to settle this which I discussed with
them. Think not at all of this great state of mine, hateful to Romans, wearying to myself;
deal with me as a friend, not as a sovereign: Augustus, Rome, the empire, rest on you:
You shall decide if Europe, Asia, or Africa be governed by a king or a republic. Yours to
say if I be emperor or simple citizen. . . . My peace is dear, but Rome is stronger still.
However great the woe that falls to me, I'll gladly die, if so I may save Rome. In
vain my heart sighs for tranquillity; Cinna, on your advice I shall retain the em-
pire, but I shall retain it only to share the rule with you. I see too well your
hearts wear no disguise for me, that each, in what advice he have, con-
sidered only the State and me. Your love has brought about be-
tween you both this combat of your spirits, now both shall be
rewarded. Maximus, I make you governor of Sicily. Go,
take my laws into that fertile land; think that you
govern in my place, and I will be re-
sponsible for all you do.
Speak no more.

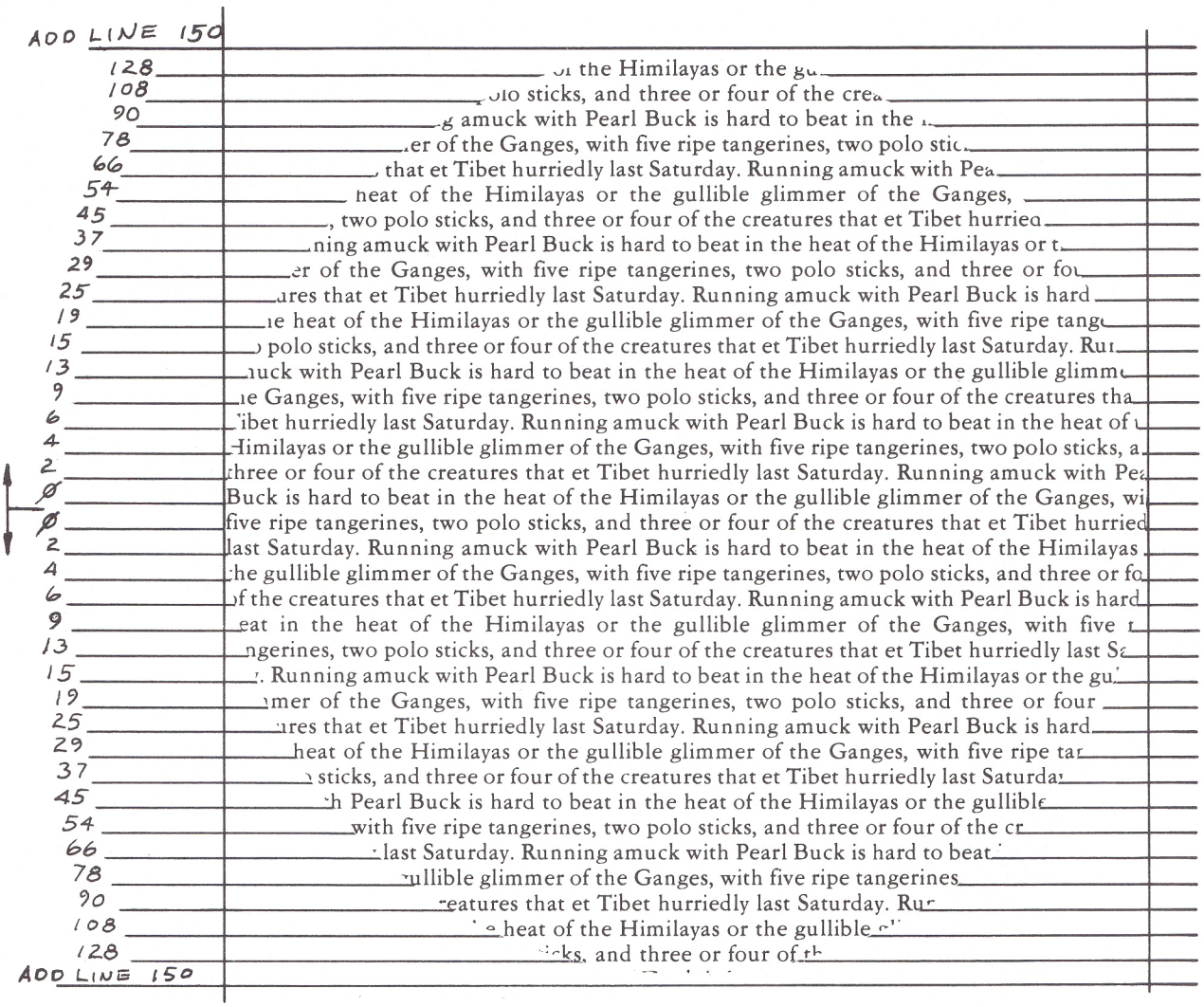
—PIERRE CORNEILLE, *Cinna,* 1640
Augustus in Act II, Scene 1

Jobs like the one above are easier than they seem. Careful layout, specifying of type, and editing are all that is necessary. Indent Take is used almost exclusively to set in irregular shapes, although it will be found that Indent Left Margin and Indent Right Margin are useful, too, for groups of lines requiring the same indent(s).

Basically, the steps are as follows:

1. The layout will prescribe the precise shape to be followed. The layout may be adjusted to fit the copy, as in this case; or the copy may be written to fit the shape and space, which is more common in a magazine environment.
2. After the overall dimensions of the shape have been determined, run a dummy text tape through the typesetter to verify the fit of the desired type size and leading. It is a good idea to have a dummy text tape—without specifications or indicated line and paragraph ending points—on hand to run with various specifications, so a dummy may be created. The leading may be calculated from the overall number of vertical points available on the layout, and a type size may be selected to conform to the leading.

In this case, the overall measure was determined to be 31 picas; Font 1 was used with 9 point type on a leading of 10 points. The "dummy" copy was then cut to fit the desired shape and pasted up on a sheet of paper. Using a T-square, lines were drawn out from the baselines of the type, past the overall measure. Then vertical lines were drawn to indicate the margins of the measure.



A total of 38 lines results.

3. Next, it is necessary to measure the amount of indent required from the left and right margins of each line. The perfect sphere used in this example dictates that only the upper left quarter needs to be measured for indenting, since the upper right quarter will have the same indent (from the right margin) and the two lower quarters will reverse those indents. Refer to the sample dummy layout above. The indent for each line is measured in points (easier than picas *and* points) from the margin of the overall measure to the point where type is to begin, preferably where a lowercase letter would fit on the edge of the design. The number of points to be indented is written in *pencil* (so it may be altered if necessary) at the end of each line extension. Notice

that the indents below the center point are the opposite of what they are above that point. For this purpose, these measurements also reflect the indents from the right margin. An extra line has been added at the top and bottom to achieve a better fit. For less perfect shapes the left and right indents may not be the same.

4. What we have now, line for line, is the "blueprint" from which the format will be written.

Font setup (Book fonts): Font 1—lightface; Font 2—italic; Fonts 3 and 4 are not used.

Format Tape

⟨**SF999**⟩	Clears the format table, since this will be a long format.
⟨**SF18**⟩	Stores Format 18.
⟨**CC31,1,9,10**⟩	Specifies measure of 31 picas, Font 1 (lightface), 9 point type, 10 points of lead.
⟨**IT.150,.150**⟩	Specifies indent of 150 points from both left and right margins.
⟨**DL1**⟩	Sets one line from the text tape.
⟨**IT.128,.128**⟩	Changes indent to 128 points from left and right margins.
⟨**DL1**⟩	Sets one line from the text tape.
⟨**IT.108,.108**⟩	For the balance of the format the same pattern is followed: change indents, set 1 line. Notice how the Delay Lines command acts the same as a Merge Copy command, returning to the format for further instructions after each line(s) is set.
⟨**DL1**⟩	
⟨**IT.90,.90**⟩	
⟨**DL1**⟩	
⟨**IT.78,.78**⟩	
⟨**DL1**⟩	
⟨**IT.66,.66**⟩	
⟨**DL1**⟩	
⟨**IT.54,.54**⟩	
⟨**DL1**⟩	
⟨**IT.45,.45**⟩	
⟨**DL1**⟩	
⟨**IT.37,.37**⟩	
⟨**DL1**⟩	
⟨**IT.29,.29**⟩	
⟨**DL1**⟩	
⟨**IT.25,.25**⟩	
⟨**DL1**⟩	
⟨**IT.19,.19**⟩	
⟨**DL1**⟩	
⟨**IT.15,.15**⟩	
⟨**DL1**⟩	
⟨**IT.13,.13**⟩	
⟨**DL1**⟩	
⟨**IT.9,.9**⟩	
⟨**DL1**⟩	
⟨**IT.6,.6**⟩	
⟨**DL1**⟩	
⟨**IT.4,.4**⟩	
⟨**DL1**⟩	
⟨**IT.2,.2**⟩	
⟨**DL1**⟩	
⟨**IT0,0**⟩	The center of the sphere is reached, the indents are canceled, and two lines are set to the full measure.
⟨**DL2**⟩	
⟨**IT.2,.2**⟩	The indenting is reversed for the bottom half of the sphere, setting a line at a time.
⟨**DL1**⟩	
⟨**IT.4,.4**⟩	
⟨**DL1**⟩	
⟨**IT.6,.6**⟩	

⟨DL1⟩
⟨IT.9,.9⟩
⟨DL1⟩
⟨IT.13,.13⟩
⟨DL1⟩
⟨IT.15,.15⟩
⟨DL1⟩
⟨IT.19,.19⟩
⟨DL1⟩
⟨IT.25,.25⟩
⟨DL1⟩
⟨IT.29,.29⟩
⟨DL1⟩
⟨IT.37,.37⟩
⟨DL1⟩
⟨IT.45,.45⟩
⟨DL1⟩
⟨IT.54,.54⟩
⟨DL1⟩
⟨IT.66,.66⟩
⟨DL1⟩
⟨IT.78,.78⟩
⟨DL1⟩
⟨IT.90,.90⟩
⟨DL1⟩
⟨IT.108,.108⟩
⟨DL1⟩
⟨IT.128,.128⟩
⟨DL1⟩
⟨IT.150,.150⟩
⟨DL1⟩
⟨IT0,0⟩ ..... The indents are canceled for any copy which may follow.
⟨EF ..... The format is terminated.

Text Tape

⟨UF18⟩ ..... Calls Format 18 into use. All text will be set automatically to the dictates of the format.
text
⟨JU ..... Force justifies the last line of text to fit the last line of the sphere.
⟨ET ..... Ends the take and returns all conditions to the Installation Standard.

A trial run, or several, may be necessary before the indents are considered perfect and the last line of text fits the last line of the format. Generally, after one run all indenting and editing adjustments can be determined. This type of work requires care and fine tuning: Perfection justifies the time spent, and results in satisfaction and pride in a job well done.

PAGE FORMATTING AND PAGINATION

PART II

CHAPTER I

WHY should we always go out of our way to describe the wretchedness and the imperfections of our life, and to unearth characters from wild and remote corners of our country? But what is to be done if such is the author's bent? What is to be done if he is sick of his own imperfections and, as a result, cannot describe anything but the wretchedness and the imperfections of our life, or do otherwise than keep unearthing characters from wild and remote corners of our country? So here we are once more in the wilds, in some out of the way corner. And what a wilderness it is! What a remote corner!

Like the giant rampart of some endless fortress with escarpments and turrets, the mountain peaks stretched on and undulated for over seven hundred miles. They were magnificently poised over endless valleys, now having sheer walls of clay and lime, scarred by torrents and ravines, now displaying the charm of some green and rounded slope, covered over with young shrubs as with lambswool, sprouting where the trees had been cut down, now clad in dark thick forests which had, as if by a miracle, escaped the axe. The river, keeping to its course, twisted and turned, sometimes browsing playfully through meadows, sometimes flashing like fire in the sunshine, sometimes plunging into thickets of birch-trees, aspens and alders, and then, at other times, running out of them triumphantly, pursued by bridges, water-mills and locks, that looked as if they were trying to catch up with it at each turning.

In one spot the steep mountain-side was wrapped more closely in the green foliage of trees. As a result of planting, and thanks to the broken ground of the hilly ravine, both the northern and southern species of the vegetable kingdom were here gathered together. The oak, the fir, the wild pear-tree, the maple, wild cherry and blackthorn, cranberry and rowanberry bushes, grown over with hops, were all there climbing up the slopes, either helping each to grow or stifling each other. At the very top, on the brow of the hill, the red roofs of the domain mingled with the green tree-tops, and behind them the curves and combs of the peasant huts showed up, as did also the upper floor of the landowner's house with its fretted wooden balcony and its large half-oval window. And above this assembly of trees and roofs the old village church towered with its five gilded cupolas. These cupolas were crowned with open-work golden crosses, fastened with gold chains, and from the distance it looked as though the air was full of sparkling, gold coins, which seemed to have no visible support. All these cupolas, roofs and crosses, were reflected upside down in the river, the banks of which were studded with monstrously contorted willows; some of these had dipped their leaves and branches in the water and got entangled in the slimy spagillas that were drifting on the surface together with yellow water-lilies; and it looked as though they were admiring the wonderful reflection in the water.

The view was a very fine one; but the view from the top, from the upper floors of the house, was even finer. No guest or visitor could stand on the balcony, and feel indifferent. He would have caught his breath in astonishment, and would have exclaimed: 'O Lord, what a view!' A boundless and illimitable horizon unfurled before him: beyond the meadows, which were

sprinkled with thickets and water-mills, forests formed several belts of green; beyond the forests, in the air which was already turning a dusky hue, there was a yellow splash of sands, then more forests succeeded, glowing as blue as the sea or as a mist, and stretching far and wide; and then came more sands, paler than before, but yellow still. Chalk hills combed the far skyline, and even in bad weather they glittered whitely as though illuminated by an everlasting sun. Like puffs of smoke, nebulous purple patches were to be seen scattered here and there at the foot of the blindingly white slopes which might have been made of plaster.

PAGINATION CONTINUES

The above selection from *Dead Souls* (1842) by Nikolai Gogol was set from a stored format which was called once at the beginning of text. The running heads and page numbers are set automatically for 29 pages — pages 306 through 334.

The number of pages stored in a format statement may be determined by two factors:

1. The length of photo paper or film which is practical for handling. In this case, it amounts to approximately 8 1/2 feet, including paper feed at either end of the take — about the maximum length one person can handle easily.
2. The capacity of the format table. This will depend primarily on the amount of copy being stored for the running heads.

It is suggested that one pagination format be written for each chapter. After Chapter I is run on the phototypesetter, the page number at which Chapter II is to begin will be known, and the format may be quickly revised to continue pagination. The stored format will always be called "1," so the text tape for each chapter will always begin with ⟨UF1⟩.

In cases where the chapter is longer than the number of pages provided for in the format, the overflow copy will be set in one continuous column. These few pages may be pasted up in the usual manner. No resetting is necessary, and pagination may immediately continue for the next chapter.

A major complaint of automatic pagination is the widows which are occasionally carried to the top of a page, or appear in other undesirable places. Unfortunately, the computer does not know a widow from a full line. *Fortunately*, though, the situation is easily remedied: Change the set width by 1/4 point size for the page in question and the facing page, and re-run the chapter; the widows should be eliminated. This minor alteration will be imperceptible to all but the very well trained eye. Since the facing page is altered identically, there will be no immediate basis for comparison. The normal set width will be restored with the next point size change for the running heads and/or page numbers.

The pages resulting from this procedure are *camera-ready. No paste-up is necessary,* except, as mentioned above, in the case of a few pages at the end of an extra long chapter.

How long will it take to set a whole book in this manner? Setting pages within the format shown below takes 1 1/2 minutes per page, or approximately 43 1/2 minutes for 29 pages. This of course is unattended operation, and a 250-page book could be set in one day (excluding keyboarding, of course).

The format below sets pages with a column width of 18 picas, with 2 picas between facing pages. The pages are 35 lines deep, with 9 point type on a leading of 10 points.

Font setup (Book fonts): Font 1 — lightface; other fonts as required within the text.

Format Tape

⟨**SF999**⟩	This will be a long format, so it is necessary to clear the format table.
⟨**SF1**⟩	Stores Format 1.
⟨**CC38,1,7**⟩	Specifies measure of 38 picas, Font 1, 7 point type for running heads. Leading will be automatic.
⟨**IA1**⟩	Increments automatic leading by 1 point.
⟨**TS18,20**⟩	Sets tabs at 18 and 20: two 18 pica columns with a 2 pica gutter column in between.

MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first two columns, since page 306 will
QUAD LEFT	be a chapter title page and will not have a page number, nor a running head.
SHIFT	Sets the running head for the right page centered in
DEAD	the third column.
SPACE BAR	
SOULS	
UNSHIFT	
QUAD CENTER	
⟨QT	Terminates the tab line.
⟨CP9⟩	Changes to 9 point type.
⟨ZL	Specifies zero lead for the next line, which will be superimposed over the last line.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first two columns.
QUAD LEFT	
307	Sets the page number flush right in the third column.
QUAD RIGHT	
⟨QT	Terminates the tab line.
⟨EL5⟩	Executes 5 points of extra lead.
⟨CP12,10⟩	Changes point size to 12 and respecifies the 10 points of lead being used (automatic lead of 9 points, incremented by 1 = 10).
EM SPACE	Executes one line space of stored lead and sets a
⟨PM	Point Mark in the line.
QUAD LEFT	
EM SPACE	Executes a second line space.
QUAD LEFT	
MARK TAB	The line is marked for tabbing.
MERGE COPY	Sets "PART II" from text tape: the third baseline below the line in which the Point Mark was set.
QUAD CENTER	Centers copy in column.
⟨QT	Terminates the tab line.
EM SPACE	Executes one line space.
QUAD LEFT	
⟨CP10,10⟩	Changes point size to 10; respecifies leading of 10.
MARK TAB	The line is marked for tabbing.
MERGE COPY	Sets "CHAPTER I" from text tape.
QUAD CENTER	Centers copy in column.
⟨QT	Terminates tab line.
EM SPACE	Executes one line space.
QUAD LEFT	
⟨CP9⟩	Changes to 9 point type for text.
⟨KL	Kills the stored leading and calls automatic leading into use again. Leading will not be specified after this point.
⟨IA1⟩	Increments automatic leading by 1 point, rendering 10 points of lead.
MARK TAB	The line is marked for tabbing.
⟨DL29⟩	Sets 29 lines from the text tape in column 1 (6 line spaces have already been used in the text column).
QUAD LEFT	Tabs to the right margin of column 1.
QUAD LEFT	Tabs over column 2 (2 pica gutter space). Copy will next be set in column 3.
⟨RM	Reverses lead to the Point Mark which was set in the first text baseline.
⟨ZL	Inhibits leading of the first line of column 3.
⟨DL35⟩	Sets 35 lines (page 307) in column 3 from the text tape.
⟨QT	Terminates the tab line.

The coding which follows is repeated for the setting of each pair of pages. The only difference is the insertion of the appropriate page numbers.

⟨**EL59**⟩	Executes 59 points of extra lead to separate pages on the galley.
⟨**CP7**⟩	Specifies 7 point type for running heads.
MARK TAB	The line is marked for tabbing.
SHIFT	Sets running head in column 1.
DEAD	
SPACE BAR	
SOULS	
QUAD CENTER	Centers head in column.
QUAD CENTER	Tabs over column 2.
DEAD	Sets running head in column 3.
SPACE BAR	
SOULS	
UNSHIFT	
QUAD CENTER	Centers head in column.
⟨**QT**	Terminates the tab line.
⟨**CP9**⟩	Specifies 9 point type for page numbers and text.
⟨**ZL**	Specifies zero lead for the next line, which will be superimposed over the last line.
MARK TAB	The line is marked for tabbing.
308	Sets page number for left page flush left in column 1.
QUAD LEFT	
QUAD LEFT	Tabs over column 2.
309	Sets page number for right page flush right in column 3.
QUAD RIGHT	
⟨**EL5**⟩	Executes 5 points of extra lead.
MARK TAB	Terminates the last tab line and initializes the next.
⟨**DL1**⟩	Sets 1 line from the text tape.
⟨**PM**	Places a Point Mark in the first baseline.
⟨**DL34**⟩	Sets the additional 34 lines of the left page (page 308).
QUAD LEFT	Tabs to column 3.
QUAD LEFT	
⟨**RM**	Reverses lead to the Point Mark which was set in the first text baseline.
⟨**ZL**	Inhibits leading of the first line of column 3.
⟨**DL35**⟩	Sets 35 lines (page 309) from the text tape in column 3.
⟨**QT**	Terminates the tab line.

Sets pages 310 & 311:

⟨EL59⟩
⟨CP7⟩
MARK TAB
SHIFT
DEAD
SPACE BAR
SOULS
QUAD CENTER
QUAD CENTER
DEAD
SPACE BAR
SOULS
UNSHIFT
QUAD CENTER
⟨QT
(CP9⟩
⟨ZL
MARK TAB
310
QUAD LEFT
QUAD LEFT
311
QUAD RIGHT
⟨EL5⟩
MARK TAB
⟨DL1⟩
⟨PM
⟨DL34⟩
QUAD LEFT
QUAD LEFT
⟨RM
⟨ZL
⟨DL35⟩
⟨QT

Sets pages 312 & 313:

⟨EL59⟩
⟨CP7⟩
MARK TAB
SHIFT
DEAD
SPACE BAR
SOULS
QUAD CENTER
QUAD CENTER
DEAD
SPACE BAR
SOULS
UNSHIFT
QUAD CENTER
⟨QT
⟨CP9⟩
⟨ZL
MARK TAB
312
QUAD LEFT
QUAD LEFT
313
QUAD RIGHT
⟨EL5⟩
MARK TAB
⟨DL1⟩
⟨PM
⟨DL34⟩
QUAD LEFT
QUAD LEFT
⟨RM
⟨ZL
⟨DL35⟩
⟨QT

Sets pages 314 & 315:

⟨EL59⟩
⟨CP7⟩
MARK TAB
SHIFT
DEAD
SPACE BAR
SOULS
QUAD CENTER
QUAD CENTER
DEAD
SPACE BAR
SOULS
UNSHIFT
QUAD CENTER
⟨QT
⟨CP9⟩
⟨ZL
MARK TAB
314
QUAD LEFT
QUAD LEFT
315
QUAD RIGHT
⟨EL5⟩
MARK TAB
⟨DL1⟩
⟨PM
⟨DL34⟩
QUAD LEFT
QUAD LEFT
⟨RM
⟨ZL
⟨DL35⟩
⟨QT

Sets pages 316 & 317:

⟨EL59⟩
⟨CP7⟩
MARK TAB
SHIFT
DEAD
SPACE BAR
SOULS
QUAD CENTER
QUAD CENTER
DEAD
SPACE BAR
SOULS
UNSHIFT
QUAD CENTER
⟨QT
⟨CP9⟩
⟨ZL
MARK TAB
316
QUAD LEFT
QUAD LEFT
317
QUAD RIGHT
⟨EL5⟩
MARK TAB
⟨DL1⟩
⟨PM
⟨DL34⟩
QUAD LEFT
QUAD LEFT
⟨RM
⟨ZL
⟨DL35⟩
⟨QT

Sets pages 318 & 319:

⟨EL59⟩
⟨CP7⟩
MARK TAB
SHIFT
DEAD
SPACE BAR
SOULS
QUAD CENTER
QUAD CENTER
DEAD
SPACE BAR
SOULS
UNSHIFT
QUAD CENTER
⟨QT
⟨CP9⟩
⟨ZL
MARK TAB
318
QUAD LEFT
QUAD LEFT
319
QUAD RIGHT
⟨EL5⟩
MARK TAB
⟨DL1⟩
⟨PM
⟨DL34⟩
QUAD LEFT
QUAD LEFT
⟨RM
⟨ZL
⟨DL35⟩
⟨QT

Sets pages 320 & 321:

⟨EL59⟩
⟨CP7⟩
MARK TAB
SHIFT
DEAD
SPACE BAR
SOULS
QUAD CENTER
QUAD CENTER
DEAD
SPACE BAR
SOULS
UNSHIFT
QUAD CENTER
⟨QT
⟨CP9⟩
⟨ZL
MARK TAB
320
QUAD LEFT
QUAD LEFT
321
QUAD RIGHT
⟨EL5⟩
MARK TAB
⟨DL1⟩
⟨PM
⟨DL34⟩
QUAD LEFT
QUAD LEFT
⟨RM
⟨ZL
⟨DL35⟩
⟨QT

Sets pages 322 & 323:

⟨EL59⟩
⟨CP7⟩
MARK TAB
SHIFT
DEAD
SPACE BAR
SOULS
QUAD CENTER
QUAD CENTER
DEAD
SPACE BAR
SOULS
UNSHIFT
QUAD CENTER
⟨QT
⟨CP9⟩
⟨ZL
MARK TAB
322
QUAD LEFT
QUAD LEFT
323
QUAD RIGHT
⟨EL5⟩
MARK TAB
⟨DL1⟩
⟨PM
⟨DL34⟩
QUAD LEFT
QUAD LEFT
⟨RM
⟨ZL
⟨DL35⟩
⟨QT

Sets pages 324 & 325:

⟨EL59⟩
⟨CP7⟩
MARK TAB
SHIFT
DEAD
SPACE BAR
SOULS
QUAD CENTER
QUAD CENTER
DEAD
SPACE BAR
SOULS
UNSHIFT
QUAD CENTER
⟨QT
⟨CP9⟩
⟨ZL
MARK TAB
324
QUAD LEFT
QUAD LEFT
325
QUAD RIGHT
⟨EL5⟩
MARK TAB
⟨DL1⟩
⟨PM
⟨DL34⟩
QUAD LEFT
QUAD LEFT
⟨RM
⟨ZL
⟨DL35⟩
⟨QT

Sets pages 326 & 327:

⟨EL59⟩
⟨CP7⟩
MARK TAB
SHIFT
DEAD
SPACE BAR
SOULS
QUAD CENTER
QUAD CENTER
DEAD
SPACE BAR
SOULS
UNSHIFT
QUAD CENTER
⟨QT
⟨CP9⟩
⟨ZL
MARK TAB
326
QUAD LEFT
QUAD LEFT
327
QUAD RIGHT
⟨EL5⟩
MARK TAB
⟨DL1⟩
⟨PM
⟨DL34⟩
QUAD LEFT
QUAD LEFT
⟨RM
⟨ZL
⟨DL35⟩
⟨QT

Sets pages 328 & 329:

⟨EL59⟩
⟨CP7⟩
MARK TAB
SHIFT
DEAD
SPACE BAR
SOULS
QUAD CENTER
QUAD CENTER
DEAD
SPACE BAR
SOULS
UNSHIFT
QUAD CENTER
⟨QT
⟨CP9⟩
⟨ZL
MARK TAB
328
QUAD LEFT
QUAD LEFT
329
QUAD RIGHT
⟨EL5⟩
MARK TAB
⟨DL1⟩
⟨PM
⟨DL34⟩
QUAD LEFT
QUAD LEFT
⟨RM
⟨ZL
⟨DL35⟩
⟨QT

Sets pages 330 & 331:

⟨EL59⟩
⟨CP7⟩
MARK TAB
SHIFT
DEAD
SPACE BAR
SOULS
QUAD CENTER
QUAD CENTER
DEAD
SPACE BAR
SOULS
UNSHIFT
QUAD CENTER
⟨QT
⟨CP9⟩
⟨ZL
MARK TAB
330
QUAD LEFT
QUAD LEFT
331
QUAD RIGHT
⟨EL5⟩
MARK TAB
⟨DL1⟩
⟨PM
⟨DL34⟩
QUAD LEFT
QUAD LEFT
⟨RM
⟨ZL
⟨DL35⟩
⟨QT

Sets pages 332 & 333:

⟨EL59⟩
⟨CP7⟩
MARK TAB
SHIFT
DEAD
SPACE BAR
SOULS
QUAD CENTER
QUAD CENTER
DEAD
SPACE BAR
SOULS
UNSHIFT
QUAD CENTER
⟨QT
⟨CP9⟩
⟨ZL
MARK TAB
332
QUAD LEFT
QUAD LEFT
333
QUAD RIGHT
⟨EL5⟩
MARK TAB
⟨DL1⟩
⟨PM
⟨DL34⟩
QUAD LEFT
QUAD LEFT
⟨RM
⟨ZL
⟨DL35⟩
⟨QT

Sets page 334:

⟨EL59⟩
⟨CP7⟩
MARK TAB
DEAD
SPACE BAR
SOULS
QUAD CENTER
UNSHIFT
⟨QT
⟨CP9⟩
⟨ZL
MARK TAB
334
⟨EL5⟩ ..... Executes 5 points of extra lead.
MARK TAB ..... Terminates the last tab line, quadding the page number left, and initializes the next tab line.
⟨DL35⟩ ..... Sets 35 lines (page 334) from the text tape in column 1.
⟨EL59⟩ ..... Executes 59 points of extra lead.
MERGE COPY ..... Sets the balance of the text tape, if any, as an unbroken galley in column 1.
⟨EF ..... Terminates the format.

Text Tape

⟨**UF1**⟩	Calls Format 1 into use, executing all commands and
SHIFT	text up to the first Merge code, where a switch is
PART II	made back to the text tape.
MERGE COPY	Returns to the format for further instructions. Pro-
CHAPTER I	cessing continues up to the next Merge code, where a
	switch is made back to the text tape.
MERGE COPY	Returns to the format for further instructions, and
	then returns to text tape for balance of chapter.
Chapter text	The text of the chapter will be automatically set and
	paginated. *NOTE: All paragraphs must be termi-*
	nated with the END-OF-PARAGRAPH command to
	prevent undesired tabbing; may be used in conjunc-
	tion with the ⟨IF *(Indent First Line) command if au-*
	tomatic paragraph indents are desired.
⟨**EL360**⟩	Leads the length of a full page, so no copy will be
	overexposed if the chapter is concluded at the top of a
	right page.
⟨**ET**	Ends the take and use of the format.

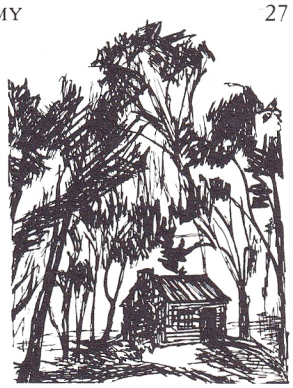
The resulting galley of the chapter appears with facing pages as they will appear in the printed book. This facilitates easy proofreading. The single galley of the chapter may be forwarded to the printer rolled up, or cut up as desired for easier handling. The printer can then cut the pages apart and flat them up as required by the printing process to be used.

Of course, if the width of two pages—plus gutter space between them—is greater than 47 picas, the pages will have to be set one-by-one vertically.

(This page intentionally left blank.)

USING A PAGINATION FORMAT WITH LAYOUT VARIATIONS COMMANDED ON THE TEXT TAPE

at the cornice, not at the foundation. It was only now to put a core of truth within the ornaments, that every sugar plum in fact might have an almond or caraway seed in it—though I hold that almonds are most wholesome without sugar—and not how the inhabitant, the indweller, might build truly within and without, and let the ornaments take care of themselves. What reasonable man ever supposed that ornaments were something outward and in the skin merely, that the tortoise got his spotted shell, or the shellfish its mother-o'-pearl tints, by such a contract as the inhabitants of Broadway their Trinity Church? But a man has no more to do with the style of architecture of his house than a tortoise with that of its shell: nor need the soldier be so idle as to try to paint the precise *color* of his virtue on his standard. The enemy will find it out. He may turn pale when the trial comes. This man seemed to me to lean over the cornice, and timidly whisper his half truth to the rude occupants who really knew it better than he. What of architectural beauty I now see, I know has gradually grown from within outward, out of the necessities and character of the indweller, who is the only builder—out of some unconscious truthfulness, and nobleness, without ever a thought for the appearance; and whatever additional beauty of this kind is destined to be produced will be preceded by a like unconscious beauty of life.



THE MOST INTERESTING dwellings in this country as the painter knows, are the most unpretending, humble log huts and cottages of the poor commonly; it is the life of the inhabitants whose shells they are, and not any peculiarity in their surfaces merely, which makes them *picturesque;* and equally interesting will be the citizen's suburban box, when his life shall be as simple and as agreeable to the imagination, and there is as little straining after effect in the style of his dwelling. A great proportion of architectural ornaments are literally hollow, and a September gale would strip them off, like borrowed plumes, without injury to the substantials. They can do without *architecture* who have no olives nor wines in the cellar. What if an equal ado were made about the ornaments of style in literature, and the architects of our bibles spent as much time about their cornices as the architects of our churches do? So are made the belles-lettres and the beaux-arts and their professors. Much it concerns a man, forsooth, how a few sticks are slanted over him or under him, and what colors are daubed upon his box. It would signify somewhat, if, in any earnest sense, *he* slanted them and daubed it; but the spirit having departed out of the tenant, it is of a piece with constructing his own coffin—the architecture of the grave, and "carpenter," is but another name for "coffin-maker." One man says, in his despair or indifference to life, take up a handful of the earth at your feet, and paint your house that color. Is he thinking of his last and narrow house? Toss up a copper for it as well. What an abundance of leisure he must have! Why do you take up a handful of dirt? Better paint your house your own complexion; let it turn pale or blush for you. An enterprise to improve the style of cottage architecture! When you have got my ornaments ready I will wear them.

Before winter I built a chimney, and shingled the sides of my house, which were already impervious to rain, with imperfect and sappy shingles made of the first slice of the log,

---

The format used in setting the above selection from *Walden* (1854) by Henry David Thoreau is similar to the format detailed in the foregoing example. Running heads and page numbers are set automatically for pages 1 through 33. The four pages shown above are taken from the middle of the chapter set by the format.

All type sizes and leading remain the same as in the previous pagination format. The following *changes* have been made:

whose edges I was obliged to straighten with a plane. I have thus a tight shingled and plastered house, ten feet wide by fifteen long, and eight-feet posts, with a garret and a closet, a large window on each side, two trap doors, one door at the end, and a brick fireplace opposite. The exact cost of my house, paying the usual price for such materials as I used, but not counting the work, all of which was done by myself, was as follows; and I give the details because very few are able to tell exactly what their houses cost, and fewer still, if any, the separate cost of the various materials which compose them:

Boards	$ 8.03
Refuse shingles for roof and sides	4.00
Laths	1.25
Two second-hand windows with glass	2.43
One thousand old brick	4.00
Two casks of lime	2.40
Hair	0.31
Mantle-tree iron	0.15
Nails	3.90
Hinges and screws	0.14
Latch	0.10
Chalk	0.01
Transportation	1.40
In all	$28.12

These are all the materials excepting the timber, stones, and sand, which I claimed by squatter's right. I have also a small woodshed adjoining, made chiefly of the stuff which was left after building the house.

I intend to build me a house which will surpass any on the main street in Concord in grandeur and luxury, as soon as it pleases me as much and will cost me no more than my present one.

I thus found that the student who wishes for a shelter can obtain one for a lifetime at an expense not greater than the rent which he now pays annually. If I seem to boast more than is becoming, my excuse is that I brag for humanity rather than for myself; and my shortcomings and inconsistencies do not affect the truth of my statement. Notwithstanding much cant and hypocrisy—chaff which I find it difficult to sep-

arate from my wheat, but for which I am as sorry as any man—I will breathe freely and stretch myself in this respect, it is such a relief to both the moral and physical system; and I am resolved that I will not through humility become the devil's attorney. I will endeavor to speak a good word for the truth. At Cambridge College the mere rent of a student's room, which is only a little larger than my own, is thirty dollars each year, though the corporation had the advantage of building thirty-two side by side and under one roof, and the occupant suffers the inconvenience of many and noisy neighbors, and perhaps a residence in the fourth story. I cannot but think that if we had more true wisdom in these respects, not only less education would be needed, because, forsooth, more would already have been acquired, but the pecuniary expense of getting an education would in a great measure vanish. Those conveniences which the student requires at Cambridge or elsewhere cost him or somebody else ten times as great a sacrifice of life as they would with proper management on both sides. Those things for which the most money is demanded are never the things which the student most wants. Tuition, for instance, is an important item in the term bill, while for the far more valuable education which he gets by associating with the most cultivated of his contemporaries no charge is made. The mode of founding a college is, commonly, to get up a subscription of dollars and cents, and then following blindly the principles of a division of labor to its extreme, a principle which should never be followed but with circumspection, to call in a contractor who makes this a subject of speculation, and he employs Irishmen or other operatives actually to lay the foundations, while the students that are to be are said to be fitting themselves for it; and for these oversights, successive generations have to pay. I think that it would be *better than this*, for the students, or those who desire to be benefited by it, even to lay the foundation themselves. The student who structures his coveted leisure and retirement by systematically shirking any labor necessary to man obtains but an ignoble and unprofitable leisure, defrauding himself of the experience which alone can make leisure fruitful. "But," says one, "you do not mean that the students should go to work with their hands instead of their heads?" I do not mean that exactly, but I mean something

---

1. The overall measure is 43 picas, which accommodates two 20 pica pages with a 3 pica space between them.
2. The format sets 41 lines of text on each page.
3. Since the running heads require fewer characters, more pages may be set by the format.

Font setup (Book fonts): Font 1—lightface; Font 2—not used; Font 3—italic; Font 4—not used.

Format Tape

⟨SF999⟩	This will be a long format, so it is necessary to clear the format table.
⟨SF1⟩	Stores Format 1.
⟨CC43,1,7⟩	Specifies measure of 43 picas, Font 1, 7 point type for running heads. Leading will be automatic.
⟨IA1⟩	Increments automatic leading by 1 point.
⟨TS20,23⟩	Sets tabs at 20 and 23: two 20 pica columns with a 3 pica gutter column in between.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first two columns, since the chapter
QUAD LEFT	will begin on the right page (page 1).
SHIFT	Sets the running head for the right page centered in
ECONOMY	the third column.
UNSHIFT	
QUAD CENTER	
⟨QT	Terminates the tab line.
⟨CP9⟩	Changes to 9 point type.
⟨ZL	Specifies zero lead for the next line, which will be superimposed over the last line.
MARK TAB	The line is marked for tabbing.
QUAD LEFT	Tabs over the first two columns.
QUAD LEFT	
1	Sets the page number flush right in the third column.
QUAD RIGHT	
⟨EL5⟩	Executes 5 points of extra lead.
MARK TAB	Terminates the last tab line and initiates the next.
QUAD LEFT	Tabs over the first two columns.
QUAD LEFT	
⟨DL41⟩	Sets 41 lines (page 1) in column 3 from the text tape.
⟨QT	Terminates the tab line.

The coding which follows is repeated for the setting of each pair of pages. The only difference is the insertion of the appropriate page numbers where indicated.

⟨EL70⟩	Executes 70 points of extra lead to separate pages.
⟨CP7⟩	Specifies 7 point type for running heads.
MARK TAB	The line is marked for tabbing.
SHIFT	The running heads will be uppercase.
⟨KC4⟩	The first character (W) will be kerned 4 units.
WALDEN	Centers head in column 1 (left page).
QUAD CENTER	
QUAD CENTER	Tabs over column 2 (gutter).
ECONOMY	Centers head in column 3 (right page).
UNSHIFT	
QUAD CENTER	
⟨QT	Terminates the tab line.
⟨CP9⟩	Specifies 9 point type for page numbers and text.
⟨ZL	Specifies zero lead for the next line, which will be superimposed over the last line.
MARK TAB	The line is marked for tabbing.

Each time this coding is repeated, the page numbers will be inserted in the proper sequence (even/odd):

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32	
QUAD LEFT	Sets the page number for left page flush left in column 1, and then tabs over column 2.
QUAD LEFT	
3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33	
QUAD RIGHT	Sets the page number for right page flush right in column 3.
⟨EL5⟩	Executes 5 points of extra lead.
MARK TAB	Terminates the last tab line and initializes the next.

⟨**DL1**⟩	Sets 1 line from the text tape.
⟨**PM**	Places a Point Mark in the first baseline.
⟨**DL40**⟩	Sets the additional 40 lines of the left page.
QUAD LEFT	Tabs to column 3.
QUAD LEFT	
⟨**RM**	Reverses lead to the Point Mark which was set in the first text baseline.
⟨**ZL**	Inhibits leading of the first line of column 3.
⟨**DL41**⟩	Sets 41 lines from the text tape in column 3 (right page).
⟨**QT**	Terminates the tab line.

After the above coding is completed for each pair of pages, the format is completed as follows:

⟨**EL70**⟩	Executes 70 points of extra lead.
MARK TAB	The line is marked for tabbing.
MERGE COPY	Sets the balance of the text tape, if any, as an unbroken galley in column 1.
⟨**EF**	Terminates the format.

On the text tape, four departures are made from the basic page layout operating within the format:

1. A page (page 26 of the sample) is cut short by canceling the Delay Lines command and merging with the format to set up the next page (27) where text will be continued.
2. An initial capital "T" is set on the second baseline of the page (page 27 of the sample).
3. A right runaround of the first 13 lines is executed (page 27 of the sample).
4. A table (page 28 of the sample) is set with leader, indented from both margins, and extra lead is added immediately preceding the table and just before the "total" line. Following the "total" line, a full line space is added.

In commanding these layout variations from the text tape, the major factor of which one must remain constantly aware is the Delay Lines action taking place within the format. The coding the operator introduces on the text tape must satisfy the requirements of the Delay Lines instruction in the format, and in certain cases compensation must be made to insure that the completed page will be the correct length (the number of full line-space executions specified in the Delay Lines command).

Extra Lead and Reverse Lead are *not counted* in the Delay Lines execution. When extra lead is added, as it is in the table, the total amount of extra lead for the page must be equal in points to one or more *full line spaces*. After all extra lead has been executed, the operator may reverse lead the number of points equaling full line space(s), and then execute blank line space(s)—EM SPACE plus END PARAGRAPH (so tabbing does not take place)—to cause this lead to be accounted for in the setting of the page.

Text Tape

⟨**UF1**⟩	Calls Format 1 into use.
⟨**IF1**⟩	Specifies a left first line indent of 1 pica.
END PARAGRAPH	Activates the first line indent for the first paragraph on the tape.
Text through paragraph ending on page 26, where an initial capital and an illustration will begin a new page "... beauty of life."	The text is automatically paginated. *NOTE: All paragraphs must be terminated with the END-OF-PARAGRAPH command to prevent undesired tabbing and also to activate the first line indent.*

END PARAGRAPH	Terminates the paragraph. Will not activate the first line indent, because Quad Left commands follow within the format.
⟨**DL**⟩	Terminates the counting of lines.
MERGE COPY	The Delay Lines action taking place is interrupted, and a return is made to the format, which tabs to column 3, returns to the Point Mark, and prepares to delay 41 lines for the right page. (The copy has been roughly measured to determine that the Merge Copy command will come somewhere in a left page.)
EM SPACE	Executes one blank line space.
END PARAGRAPH	
⟨**IR12,9.2**⟩	Specifies a right margin indent of 9 picas 2 points for 12 lines.
⟨**CP24,10**⟩	Changes point size to 24, and respecifies the 10 points of automatic lead being used (9 points incremented by 1 = 10).
SHIFT	Sets a capital "T", kerned 4 units, on the second
⟨**KC4**⟩	baseline. The right margin indent is in effect begin-
T	ning with this line.
⟨**CP9,10**⟩	9 point type is restored, and the 10 point leading is respecified.
HE MOST INTERESTING ..	The first three words are set in 9 point capitals.
UNSHIFT	The balance of the paragraph is set.
"... I will wear them."	
END PARAGRAPH	Terminates the paragraph.
⟨**KL**	Kills the stored leading. Automatic leading will be in effect.
⟨**IA1**⟩	Respecifies the 1 point increment.
END PARAGRAPH	Since a specification change has taken place, it is a good idea to reactivate the first line indent.
Text continues through line preceding table "... compose them:"	
END PARAGRAPH	Terminates paragraph.
⟨**EL5**⟩	Executes 5 points of extra lead.
⟨**IF1,1**⟩	Specifies first line indent of 1 pica from both left and right margins. Each line of the table will be terminated with END PARAGRAPH, which will not only prevent undesired tabbing but will activate the indents for each line.
END PARAGRAPH	Activates the indents for the first line of the table.
Boards	Sets the copy preceding the leaders followed by a
SHIFT	Thin Space to separate it from the leaders.
THIN SPACE	
UNSHIFT	
WITH LEADERS	Inserts leaders, followed by an Em Space to separate
EM SPACE	the dollar amounts.
$	Sets the dollar sign followed by a Figure Space to
FIGURE SPACE	replace the missing number.
8.03	
END PARAGRAPH	Terminates the line and activates the indents for the
Refuse ... and sides	next line.
SHIFT	
THIN SPACE	
UNSHIFT	
WITH LEADERS	
EM SPACE	
FIGURE SPACE	Two Figure Spaces replace the dollar sign and the
FIGURE SPACE	missing number.
4.00	
END PARAGRAPH	Terminates the line and activates the indents for the next line.
The subsequent lines of the table are set in the same manner,	

through the line preceding the total line....	
Transportation 1.40	
END PARAGRAPH	Terminates the line.
⟨**EL5**⟩	Executes 5 points of extra lead.
EM SPACE	Indents the next line an additional 2 Em Spaces.
EM SPACE	
In all	
SHIFT	
THIN SPACE	
UNSHIFT	
WITH LEADERS	
EM SPACE	
$28.12	
END PARAGRAPH	Terminates the line.
⟨**RV10**⟩	Reverses 10 points, equal to the extra lead which has been executed.
EM SPACE	A blank line space is executed to compensate for the
END PARAGRAPH	lead which has been added.
EM SPACE	An extra line space is executed to separate the table
END PARAGRAPH	from the copy which follows.
⟨**IF1,0**⟩	The previous first line indent is restored; the right indent is canceled.
END PARAGRAPH	Activates the new first line indent for the following paragraph.
Text continues through the end of the chapter. ...	Each paragraph is ended with END PARAGRAPH to prevent tabbing and to activate the first line indent.
⟨**ET**	Discontinues use of the format and ends the take.

This procedure on the text tape is valid where tables falling within justified pages are short and widely separated by straight matter. The possibility is always present, though, that a table will be split between two pages, making a leading compensation (if extra lead has been added, or the leading changed) invalid for the page being set.

When one is dealing with an automatic mechanism, it is sometimes difficult to allow for all possibilities. However, there are several ways to avoid splitting tables between pages (in some cases permissible), and to avoid uneven pages due to a change in leading or due to extra leading which is not compensated for on the same page in which it is executed.

1. Measure the manuscript copy in advance of keyboarding to determine roughly where in a page a table will fall or leading adjustments will occur, and compensate for leading variations as soon as possible after they are executed.
2. Leave space for a table, or other copy which has different specifications from the normal text, by executing blank line space. This is perhaps the most practical method, since adjustments in the page can easily be made later, and all pages will be of uniform length.
3. Where a great number of tables and changes in point size and leading are involved, perhaps automatic pagination is not the answer. It may be found that time is saved by setting the copy in a continuous galley and following normal paste-up procedures. The folios may be set in one piece for fast paste-up.

"INDENT TAKE" NOTE: Another way of setting parallel pages is through use of the Indent Take command, where an indent from the right margin (over the right page plus gutter) is used for the left page, and an indent from the left

margin (over the left page plus gutter) is used for the right page. This method takes more coding than setting pages as tabular columns, since the indents need to be changed for each page.

VARIOUS TYPES OF PAGINATION FORMATS

There are at least three basic ways of writing pagination formats. The method to be used will be dictated by the requirements of the copy being set.

Method 1:

Facing (parallel) pages may be set within tabular columns, as demonstrated in the two foregoing examples. This method is useful for setting novels and other books containing primarily straight text matter which is seldom broken by variations in specifications.

The advantages are: a) economical use of coding to set the pages; b) ease of keyboarding; c) more pages may be set at one time than with other methods; and d) the length of the galley is less when pages are set parallel to each other.

The disadvantages are: a) since a tab-setting command is being used to set the pages, other tab-setting commands *may not* be used to set tables within the pages; b) all lines and paragraphs *must* be terminated with the END PARAGRAPH command; and c) centered and flush right copy is not possible unless the operator knows in which column the page is being set (the first pagination example), so tabbing can be carried out from the keyboard.

Method 2:

Facing pages may be set by alternately indenting the left and right margins with the Indent Take command.

The advantages are: a) all of the tab-setting commands may be used within the pages for setting tables—"Tab Number" and "Tab Proportion" will be calculated within active indents; and b) quadding may take place anywhere within a page.

The disadvantages are: a) in order to use "Tab Set," the operator must know from which margin indenting is occuring at the time the page is being set; and b) more keyboarding is required than in Method 1—for instance, four superimposed lines would be required to set the running heads and page numbers for two parallel pages, and the indents would have to be changed to set each page—hence, fewer pages may be set automatically.

Method 3:

Each page directly follows the last on the galley, without the use of any tab-setting or indenting commands.

The advantage of this method is that the operator is free to use all tab-setting and indenting commands within the page, and no page-setting commands, except for Delay Lines, need to be taken into account.

The disadvantage of this method is that fewer pages may be set because the length of the galley is substantially increased, and the typesetting process is slowed because lens changes need to be made twice as often for running heads and text.

Methods 2 and 3 become more useful as the layout becomes more complex. Nonetheless, when extremely complex copy is involved, a decision must be made as to whether pagination is feasible. Setting the chapter in one continuous galley and pasting it up may save time in the long run.

Each method has its own advantages and disadvantages, and no method is necessarily better than another. What *is* important is that the method selected be economical and best suited to the application.

MAGAZINE PAGE FORMAT (With 3-Column Runaround)

I grew weary of the Sea, and intended to stay at home with my Wife and Family. I removed from the *Old Jury* to *Fetter-Lane*, and from thence to *Wapping*, hoping to get Business among the Sailors; but it would not turn to account. After three Years Expectation that things would mend, I accepted an advantageous Offer from Captain *William Prichard*, Master of the *Antelope*, who was making a Voyage to the *South-Sea*. We set sail from *Bristol*, May 4th, 1699, and our Voyage at first was very prosperous. It would not be proper for some Reasons, to trouble the Reader with the Particulars of our Adventures in those Seas: Let it suffice to inform him, that in our Passage from thence to the *East-Indies*, we were driven by a violent Storm to the Northwest of *Van Diemen's* Land [Tasmania]. By an Observation, we found ourselves in the Latitude of 30 Degrees 2 Minutes South. Twelve of our Crew were dead by Immoderate Labour, and ill Food; the rest were in a very weak Condition. On the fifth of *November*, which was the beginning of Summer in those Parts, the Weather being very hazy, the Seamen spyed a Rock, within half a Cable's length of the Ship; but the Wind was so strong, that we were driven directly upon it, and immediately split. Six of the Crew, of whom I was one, having let down the Boat into the Sea, made a Shift to get clear of the Ship, and the Rock. We rowed by my Computation, about three Leagues, till we were able to work no longer, being already spent with Labour while we were in the Ship. We therefore trusted ourselves to the Mercy of the Waves; and in about half an Hour the Boat was overset by a sudden Flurry from the North. What became of my Companions in the Boat, as well as of those who escaped on the Rock, or were left in the Vessel, I cannot tell; but conclude they were all lost. For my own Part, I swam as Fortune directed me, and was pushed forward by Wind and Tide. I often let my Legs drop, and could feel no Bottom: But when I was almost gone, and able to struggle no longer, I found myself within my Depth; and by this Time the Storm was much abated. The Declivity was so small, that I walked near a Mile before I got to the Shore, which I conjectured was about Eight o'Clock in the Evening. I then advanced forward near half a Mile, but could not discover any Sign of Houses or Inhabitants; at least I was in so weak a Condition, that I did not observe them. I was extremely tired, and with that, and the Heat of the Weather, and about half a Pint of Brandy that I drank as I left the Ship, I found myself much inclined to sleep. I lay down on the Grass, which was very short and soft; where I slept sounder than ever I remember to have done in my Life, and I reckoned, above Nine Hours; for when I awakened, it was just Daylight. I attempted to rise, but was not able to stir: For as I happened to lie on my Back, I found my Arms and Legs were strongly fastened on each Side to the Ground; and my Hair, which was long and thick, tied down in the same Manner. I likewise felt several slender Ligatures across my Body, from my Armpits to my Thighs. I could only look upwards; the Sun began to grow hot, and the Light offended mine Eyes. I heard a confused Noise about me, but in the Posture I lay, could see nothing except the Sky. In a little time I felt something alive moving on my left Leg, which advanced gently forward over my Breast, came almost up to my Chin; when bending mine Eyes downwards as much as I could, I perceived it to be a human Creature not six Inches high, with a Bow and Arrow in his Hands, and a Quiver at his back. In the mean time, I felt at least Forty more of the same Kind (as I conjectured) following the first. I was in the utmost Astonishment, and roared so loud, that they all ran back in a Fright; and some of them, as I was afterwards told, were hurt with the Falls they got by leaping from my Sides upon the Ground. However, they soon returned; and one of them, who ventured so far as to get a full Sight of my Face, lifting up his Hands and Eyes by way of Admiration, cryed out in a shrill but distinct Voice, "Hekinah Degul." The others repeated the same Words several times, but I then knew not what they meant. I lay all this while, as the Reader may believe, in great Uneasiness: At length, struggling to get loose, I had the Fortune to break the Strings, and wrench out the Pegs that fastened by left Arm to the Ground; for, by lifting it up to my Face, I discovered the Methods they had taken to bind me; and, at the same time, with a violent Pull, which gave me excessive Pain, I a little loosened the Strings that tied down my Hair on the left Side; so that I was just able to turn my Head about two Inches. But the Creatures ran off a second time, before I could seize them; whereupon there was a great Shout in a very shrill Accent; and after it ceased, I heard one of them cry aloud, "Tolgo Phonac"; when in an Instant I felt above an Hundred Arrows discharged on my left Hand, which pricked me like so many Needles; and besides they shot another Flight into the Air, as we do Bombs in *Europe*; whereof many, I suppose, fell on my Body, (though I felt them not) and some on my Face, which I immediately covered with my left Hand. When this Shower of Arrows was over, I fell a groaning with Grief and Pain; and then striving again to get loose, they discharged another Volley larger than the first; and some of them attempted with Spears to stick me in the Sides; but, by good Luck, I had on me a Buff Jerkin, which they could not pierce. I thought it the most prudent Method to lie still; and my Design was to continue so till Night, when my left Hand being already loose, I could easily free myself: And as for the Inhabitants, I had Reason to believe I might be the Match for the greatest Armies they could bring against me, if they were all of the Same Size with him that I saw. But Fortune disposed otherwise of me. When the People observed I was quiet, they discharged no more Arrows: But by the Noise increasing, I knew their Numbers were greater; and about four Yards from me, over-against my right Ear, I heard a Knocking for above an Hour, like People at work; when turning my Head that Way, as well as the Pegs and Strings would permit me, I saw a Stage erected about a Foot and a half from the Ground, capable of holding four of the Inhabitants, with two or three Ladders to mount it: From whence one of them, who seemed to be a Person of Quality, made a long Spèech, whereof I understood not one Syllable. But I should have mentioned, that before the Principal Person began his Oration, he cryed out three times "Langro Dehul san" (these Words and the former were afterwards repeated and explained to me). Whereupon immediately about fifty

This selection is from *Gulliver's Travels* (1726) by Jonathan Swift. Following is a suggested format for such a page with a 3-column runaround for a photograph or other illustration. The folios are stored in the format, as would be the caption and/or photo credit if they appeared on this page. The page has been scaled down slightly from the average magazine size page ($8\frac{3}{8}'' \times 11\frac{1}{8}''$), and came from the phototypesetter as it appears here.

For such magazine page formatting, it is suggested that the length of the page be established in points—in this case it is 630 points, or 70 lines. Using this page-depth standard, it is quite easy to determine the placement of illustrations, captions, heads, etc.—together with the extra and reverse leading requirements to fit and set them, or around them.

The overall measure of the page is 38 picas, within which are set three 12-pica columns with 1-pica gutters between them.

Font setup (Book fonts): Font 1—lightface; Font 2—boldface (not used here); Font 3—italic; Font 4—boldface for folios (sans serif).

Format Tape

⟨SF7⟩	Stores Format 7 (to set page 35).
⟨CC38,1,8,9⟩	Specifies measure of 38 picas, Font 1, 8 point type, 9 points of lead.
⟨CW7.3⟩	The set width will be the equivalent of 7¾ point type, to give a tighter fit.
⟨PM	Sets a Point Mark, followed by Quad Left to specify
QUAD LEFT	the first baseline of the page.
⟨IT0,28⟩	Specifies a right indent of 28 picas (two 12-pica columns, two 1-pica gutters, and an additional 2-pica indent for the runaround).
⟨DL29⟩	Sets 29 lines from the text tape.
⟨IT0,26⟩	Changes the right indent to 26 picas (the runaround is completed for this column).
⟨DL41⟩	Sets the remaining 41 lines of the column from the text tape.
⟨RM	Returns to the Point Mark in the first baseline.
⟨IT13,13⟩	Specifies indents of 13 picas from the left and right margins (one 12-pica column and one 1-pica gutter each).
⟨EL261⟩	Executes 261 points of extra lead, equal to the 29 lines of the runaround.
⟨DL41⟩	Sets the 41 lines of the center column from the text tape.
⟨RM	Returns to the Point Mark in the first baseline.
⟨IT28,0⟩	Specifies an indent of 28 picas from the left margin, the opposite of the first column.
⟨DL29⟩	Sets 29 lines from the text tape.
⟨IT26,0⟩	Changes the left indent to 26 picas (the runaround is completed for this column).
⟨DL41⟩	Sets the remaining 41 lines of the column from the text tape.
⟨IT0⟩	Cancels the indent.
⟨CF4,7,14⟩	Specifies Font 4, 7 point type, and 14 points of lead for the folio line.
SHIFT	Sets the folio line.
LILLIPUTIAN GAZETTE,	
SPACE BAR	
UNSHIFT	
23	
SPACE BAR	
SHIFT	
M	

⟨**KC3**⟩	Kerns the "A" 3 units.
AY	
SPACE BAR	
UNSHIFT	
1726	
⟨**QM**	Quads from the Middle to set the publication name and date flush left and the page number flush right.
⟨**CP8**⟩	Changes to 8 point type.
35	Sets the folio.
QUAD LEFT	Terminates the line.
⟨**EL50**⟩	Executes 50 points of extra lead to separate pages.
⟨**UF8**⟩	Calls Format 8 which will set page 36.

Text Tape

⟨**UF7**⟩	Calls Format 7 into use, setting the full page automatically.
Full text of the story	Each format setting a page will call the format setting the next page, and so on for the balance of the story layout.
⟨**ET**	Ends the take and the use of all formats.

CONTROLLING THE DEGREE OF A SKEW WITH A FORMAT

ONCE upon a time, some people in India made a new Heaven and a new Earth out of broken tea-cups, a missing brooch or two, and a hairbrush. These were hidden under bushes, or stuffed into holes in the hillside, and an entire Civil Service of subordinate Gods used to find or mend them again; and every one said: "There are more things in Heaven and Earth than are dreamed of in our philosophy." Several other things happened also, but the Religion never seemed to get much beyond its first manifestations; though it added an airline postal service, and orchestral effects in order to keep abreast of the times, and choke off competition. This Religion was too elastic for ordinary use. It stretched itself and embraced pieces of everything that the medicine men of all ages have manufactured. It approved of and stole from Freemasonry; looted the Latter-day Rosicrucians of half their pet words; took any fragments of Egyptian philosophy that it found in the *Encyclopaedia Britannica;* annexed as many of the Vedas as had been translated into French or English, and talked of all the rest; built in the German versions of what is left of the Zend Avesta; encouraged White, Gray and Black Magic, including spiritualism, palmistry, fortune-telling by cards, hot chestnuts, double-kerneled nuts and tallow droppings; would have adopted Voodoo and Oboe had it known anything about them, and showed itself, in every way, one of the most accommodating arrangements that had ever been invented since the birth of the Sea. When it was in thorough working order, with all the machinery, down to the subscriptions, complete, Dana Da came from nowhere, with nothing in his hands, and wrote a chapter of its history which has hitherto been unpublished. He said that his first name was Dana, and his second was Da. Now, setting aside Dana of the New York *Sun,* Dana is a Bhil name, and Da fits no native of India unless you except the Bengali De as the original spelling. Da is Lap or Finnish; and Dana Da was neither Finn, Chin, Bhil, Bengali, Lap, Nair, Gond, Romaney, Magh, Bokhariot, Kurd, Armenian, Levantine, Jew, Persian, Punjabi, Madrasi, Parsee, nor anything else known to ethnologists. He was simply Dana Da, and de-clined to give further information. For the sake of brevity and as roughly indicating his origin, he was called "The Native." He might have been the original Old Man of the Mountains, who is said to be the only authorized head of the Tea-cup Creed. Some people said that he was; but Dana Da used to smile and deny any connection with the cult; explaining that he was an "Independent Experimenter."

The text for the sample on the facing page is taken from *The Sending of Dana Da*, a short story by Rudyard Kipling.

Problem:

The art director requests the following: A right skewed runaround in which the first line is 10 picas in length, and the succeeding 29 lines increase in length by 1/4 pica each; after which all lines are to be set to a measure of 40 picas. The type size is to be 8 point, with a set width of 7¾. The first letter will be a 24 point capital; the rest of the first word, 7 point caps. Nine points of leading are to be used, and letterspacing will not be permitted.

Solution:

1. It is determined that a Negative Right Skew will be used to achieve the desired shape.
2. The overall measure is 40 picas, and to make the first line 10 picas in length, an indent of 30 picas is necessary. This is one-half the skew command; now, how many lines?
3. Since the indent is 30 picas, to make the "stepping" of the lines in increments of 1/4 pica, the number of lines specified must be four times the indent, or 120 lines.
4. But the art director only wants *30 lines* skewed. . . . Following the Skew Right command, a Delay Lines command specifying the desired 30 lines says, in effect, to the computer, "I've told you how many lines to set for the skew, but now I'm qualifying that: Of those 120 lines which determine the 'stepping' of the indent, I only want you to set *30*."
5. After the 30 lines are set, and a return is made to the format for more instructions, it is necessary to discontinue the skewing. If text setting were to be continued at this point with a Merge code in the format, the skew would take up where it left off and complete the 120 lines! To prevent this, we specifically cancel the Skew Right command, just as an Indent Take command would be canceled: ⟨SR0,0⟩—the lines specification is canceled, and so is the indent. Now, a Merge may be made with the text tape to set the balance of copy to the full measure of 40 picas.

Font setup (Book fonts): Font 1—lightface; Font 2—boldface; Font 3—italic; Font 4—not used.

Format Tape

⟨**SF163**⟩	Stores Format 163.
⟨**CC40,1,8,9**⟩	Specifies measure of 40 picas, Font 1, 8 point type, 9 points of lead.
⟨**XL**	Cancels letterspacing.
⟨**SR-120,30**⟩	Specifies a Negative Right Skew for 120 lines, with a maximum indent of 30 picas.
⟨**DL30**⟩	Sets 30 lines from the text tape.
⟨**SR0,0**⟩	Specifically cancels the skew values.
MERGE COPY	Returns to text tape to set the balance of copy to the full measure.
⟨**EF**	Terminates the format.

Text Tape

⟨**UF163**⟩	Calls Format 163 into use.
⟨**CP24,9**⟩	Specifies 24 point type, overriding the 8 point type in the format; respecifies 9 points of lead.

SHIFT	Sets the initial capital "O," kerning it 2 units.
⟨**KC2**⟩	
O	
⟨**CP6,9**⟩	Specifies 6 point type for the rest of the first word; respecifies 9 points of lead.
NCE	Sets the rest of the first word.
⟨**CP8,9**⟩	Returns to 8 point type; respecifies 9 points of lead.
⟨**CW7.3**⟩	The set width will be the equivalent of 7¾ point type.
SPACE BAR	Use of the format will be discontinued when it has completed its functions.
the balance of copy for the take follows . . .	
⟨**ET**	Ends the take.

SECTION 8

PERMANENT & TEMPORARY EXCEPTION DICTIONARIES

Two exception dictionaries—designed to augment the basic hyphenation logic—are provided for in the computer software. The *Permanent Dictionary* is created and maintained by the user, and stored permanently in the computer. The *Temporary Dictionary* is for special use in a specific job and is canceled at the completion of that job. Both of these dictionaries are discussed separately below; but to use them most efficiently it is important to know what makes a word eligible for hyphenation and what specific procedures are followed by the computer to hyphenate that word.

HYPHENATION RULES

Certain conditions must be met before a word is considered for hyphenation:

1. The word must contain *six* or more characters to be processed by the exception dictionaries. If the word has *five* characters, the exception dictionaries will be bypassed and logical hyphenation will be attempted; if the five-character word ends with an "s", no hyphenation is attempted. If the word has *four* characters or less, hyphenation will not be considered.
2. Characters following an apostrophe are *not* counted in making the word eligible for hyphenation, and no hyphenation is possible following an apostrophe unless specified in the exception dictionary.
3. All numerics, symbols and punctuation prior to the first *alpha* character are *not* counted in making the word eligible for hyphenation.
4. If a numeric value has six or more characters, hyphenation is permissible following any commas in the value. For instance: *$20,- 000,000* or *$20,000,- 000.* This hyphenation of numeric values is accomplished through hyphenation logic, and does not require use of the dictionaries. Hyphenation may be canceled for numeric values if desired.
5. If the word contains Discretionary Hyphens—(HH—no attempt is made to determine new hyphenation points.

When a word contains *six or more characters* and qualifies for hyphenation under the above conditions, the computer follows these procedures:

1. The *Temporary Dictionary* is scanned for the word. If a match is found, the word is hyphenated at the point specified which results in the tightest line. If the word is not found in this dictionary,
2. the *Permanent Dictionary* is scanned for the word. If the word is found, hyphenation is performed at the point specified which results in the tightest line. If the word is not found in this dictionary,
3. *Hyphenation Logic* will be called upon. The word passes through three hyphenation phases—a suffix table, a prefix table and logical hyphenation—selecting as many hyphenation points as apply to that word. The hyphenation point resulting in the tightest line is used.

NOTE: In the discussion which follows, the commands associated with the Permanent and Temporary dictionaries will be used routinely in examples. For a description of the commands, see Section 5, Command Language.

PERMANENT DICTIONARY

The Photomix phototypesetter, Series 8400, basic 8K model incorporates a 1,900 character storage area (optionally expandable in increments of 8K, adding approximately 8,000 characters with each increment) which may be used for Dictionary and/or Format storage. The typesetting program, as supplied, allots 1,000 of these characters to Permanent Dictionary storage. For details on this feature and information on how the capacity of the Permanent Dictionary may be altered, please consult Appendix D, *The Format Storage Command.*

The capacity of the dictionary is greater than it seems because it is comprised primarily of word roots, the base form of a word from which other forms are derived with unique continuations of, or endings to the root.

By entering the root *con-f* with the command ⟨**PE**con-f⟩, these twenty-nine words are covered:

con-fab	con-flicted
con-fect	con-flux
con-fected	con-form
con-fer	con-formed
con-fess	con-found
con-fetti	con-founded
con-fide	con-fract
con-fided	con-frere
con-fine	con-front
con-fined	con-fronted
con-firm	con-fuse
con-firmed	con-fused
con-flate	con-fute
con-flated	con-futed
con-flict	

This is only one example of the use of a simple word root. What happens when the dictionary is being scanned for the word is this: If a match is found; that is, if a word root is found that matches the beginning of the word in question, that part of the word is exempt from further checking. However, those portions of the word not included in the root found in the dictionary will be processed through logical hyphenation in an attempt to find as many additional break-points as possible. This procedure will result in the tightest possible line where a root providing a match for a number of words has been stored in either the Permanent or Temporary Dictionary.

Quite often, though, it might be desirable to enter a more complex form of a word which in turn will cover less complex forms of that word. Take the word *conform* in the above list as an example. The various forms of the word are:

con-form	con-for-ma-tion
con-form-a-bil-ity	con-formed
con-form-a-ble	con-form-ist
con-form-a-ble-ness	con-form-i-tant
con-form-a-bly	con-form-ity

Dictionary entries in this order . . .	. . . will cover these forms of the word *conform*:
con-form-a-ble-n	conformable, conformableness
con-form-a-bil-i	conformability
con-form-a-b	conformably (also conformable)
con-form-i-ta	conformitant
con-form-i	conformist, conformity
con-for-ma-t	conformation
con-f	conform (plus any of the words listed above under this root)

NOTE: The suffix "ed" is not *permitted as a hyphenation point in the program's logical hyphenation routine, since it is generally found to be undesirable. Therefore, for the number of words covered by the root "con-f" above, and ending in "ed", the suffix will not be hyphenated.*

Keyboarding of the entries is as follows:

⟨**PE**con-form-a-ble-n⟩ ⟨**PE**con-form-a-bil-i⟩ ⟨**PE**con-form-a-b⟩
⟨**PE**con-form-i-ta⟩ ⟨**PE**con-form-i⟩ ⟨**PE**con-for-ma-t⟩ ⟨**PE**con-f⟩

NOTE: The dictionary entries must progress from COMPLEX to SIMPLE forms of a word. If a match is found for a complex form of the word before the computer has had a chance to reach the appropriate entry for that word, not all of the hyphenation possibilities will be considered.

For instance, if *con-form-a-b* had been the first entry and if the computer were scanning the dictionary for the words *conformableness* or *conformability*, their hyphenation possibilities would be limited to *con-form-a-bleness* and *con-form-a-bility*, respectively.

It is quite possible, though, that the use of these forms of the word would be limited in which case their respective entries would be eliminated from the dictionary.

Use of Period in Dictionary Entries

The program allows the use of a " . " (period) in dictionary entries. This permits any character to find a match when compared against the period character. An example of this capability is "HO . SE-". Words such as "horse-player" and "house-boat" would find a match, and the hyphen would be placed as shown in the example. This practice can increase the number of words for which a match will be found with a single root stored in the dictionary.

(This page intentionally left blank.)

Deleting Single Words from the Permanent Dictionary

In the constant updating of the Permanent Dictionary, various words no longer in current use may be eliminated from the dictionary to make room for new ones. Words may be deleted at any time without affecting the balance of the dictionary as follows:

⟨PDmasquera⟩ (masquerade)

Clearing the Permanent Dictionary

Since a basic Permanent Dictionary exists in the software, it is necessary to clear this dictionary before entering your own. Enter the command ⟨XD8400⟩ at the beginning of your dictionary load tape.

It is quite possible that a need will be found for more than one Permanent Dictionary for totally different applications; i.e., novels as opposed to chemical or engineering textbooks. In each case, clear the existing dictionary with the command ⟨XD8400⟩ before loading a new one or a dictionary overload error message may be set.

Obtaining a Dictionary Print-Out

When constant changes are being made to the dictionary (adding and/or deleting words), it is a good idea to regularly request a complete listing of all of the words in the dictionary with the command ⟨PD2⟩, so that if the dictionary is ever lost from memory through command error (⟨XD8400⟩ being entered by mistake), or other cause, the Permanent Dictionary load tape may be easily recreated.

Permanent Dictionary Load Tape

A suggested format for the Permanent Dictionary load tape follows:

⟨XD8400⟩ .... all dictionary entries ... ⟨PD2⟩⟨ET

The dictionary is cleared, new words are entered, the dictionary is listed on the typesetter for confirmation, and End-of-Take simply stops the tape in the reader. If a Dictionary Overflow message (ER19) is received, those words which appear on the load tape, but not on the dictionary print-out from the typesetter, are the ones which did not make it into the dictionary. The Permanent Dictionary may then be edited slightly, or the capacity of the dictionary may be increased (see Appendix D).

TIPS FOR CREATING AND MAINTAINING THE PERMANENT DICTIONARY

1. Enter words in the dictionary only as it is discovered that they are hyphenated incorrectly or undesirably by the Hyphenation Logic. Do not try to second-guess the computer! The dictionary storage area will be wasted by entering words which the logic can adequately process. The dictionary is meant to cover words which are *exceptions* to the normal logic.
2. Enter only the roots of words containing six or more characters (the root may contain fewer than six characters). The dictionary will not be scanned for words of five or fewer characters.

3. Conserve storage area by entering only as much of the word as is necessary to achieve a positive match. Ending the entry with the letter following the last hyphenation point is sufficient.
4. Hyphenation of a word may be prohibited simply by entering the word *without* hyphens.
5. Enter words in order of decreasing complexity to prevent the premature match of a word with multiple hyphenation points.
6. Do not enter words in alphabetical order; this is not the manner in which the dictionary is scanned.
7. Maintain a running log of words entered and deleted from the Permanent Dictionary — perhaps separate logs for separate versions of the dictionary for jobs utilizing totally different vocabularies.
8. Obtain a print-out of the dictionary with the ⟨PD2⟩ command at the end of every working day — or less often depending upon how frequently changes are made — and file the print-out with the Permanent Dictionary Log to keep it up to date.

NOTE: The ⟨ET *(End-of-Take) command should be used to end dictionary tapes whether the tape be adding words, deleting words or requesting a dictionary print-out. Otherwise, Error Messages will not be printed.*

TEMPORARY DICTIONARY

The Temporary Dictionary has a capacity of 250 word characters. Hyphens indicating hyphenation points are not counted. This dictionary is scanned prior to the Permanent Dictionary. Words are entered in the same fashion as for the Permanent Dictionary, except that the command ⟨ED is utilized:

⟨EDca-tas-tro-p⟩ (catastrophe)

The above entry will cover all forms of the word.

The dictionary should be entered at the beginning of the job for which it is to be used, although individual words may be entered within the text tape as it is determined they are needed.

All words will be cleared from the dictionary with a ⟨ET (End-of-Take) command.

The Temporary Dictionary is very useful for quickly correcting incorrect or undesired hyphenations in a galley of text. Simply enter all words in question with correct hyphenation points on a separate tape, but *do not end the tape with* ⟨ET (this will clear the words just entered). Read this tape into the typesetter, press Computer STOP to stop the reader, reload the text tape, and press START to continue. The hyphenation will be corrected. Do not press INITIALIZE between loading the dictionary and running the text, as this will dump the dictionary. Later, these word roots may be entered, if desired into the *Permanent* Dictionary.

SECTION 9

THE INSTALLATION STANDARD

The Installation Standard is a set of default conditions resident in the software of the Photomix phototypesetter, Series 8400. This standard is the foundation from which all specification and format changes are made. Hence, many of the commands used in the operation of the machine incorporate *changing* a specification—Change Column Width, Change Face, etc. The commands are actually specifying a change *from* the Installation Standard.

The following eight conditions constitute the Installation Standard:

1. Column Width of *10 picas*
2. Face number *1*
3. Point Size of *10*
4. Leading of *10 points*
5. Interword Spacing of *8* (minimum), *12* (optimum) and *30* (maximum)
6. Set Width equal to specified Point Size of Type; i.e., the Set Width of 9 point type is 9.
7. Allow Hyphenation
8. Allow Letterspacing

NOTE: A ⟨ET *(End-of-Take) command will always return all specifications to this Installation Standard.*

CHANGING THE INSTALLATION STANDARD

Conditions 1 through 4—Column Width, Face, Point Size, Leading—may be *permanently* changed in the memory of the phototypesetter. This is accomplished with the command ⟨ES (Enter Standard).

For instance, the bulk of the work done in a given shop utilizes these basic specifications: 20 pica column width, font 1, 11 point type, 11½ points of lead. By entering the command ⟨ES20,1,11,11.5⟩, the *new* Installation Standard is permanently stored in the computer. Thereafter, when any or all of the four initial specification commands are found to contain an error, the computer will revert to the Installation Standard. If 13 point type, which does not exist, is specified, the standard 11 point type will be used, along with the standard leading if necessary, and an Error Message will be set at the end of the take indicating which command—"cp" in this case—was in error.

If an entire initial specification command string has a keyboarding error (for instance, "CO" instead of "CC" at the beginning of the string), the entire set of Installation Standard specifications will be used and an Error Message will be set at the end of the take.

If a format is addressed which has not been previously stored, or merging between a stored format and text tape does not match, the entire body of text will be set to the Installation Standard and an Error Message will be set at the end of the take.

Of course, Interword Spacing, Set Width, Hyphenation and Letterspacing may be controlled by tape command. A ⟨ET (End-of-Take) command will always return to the Installation Standard conditions with the exception of *Interword Spacing* (see below).

USING MORE THAN ONE INSTALLATION STANDARD: A shop that regularly sets more than one publication may establish an Installation Standard—with a separate ⟨ES command—for each, and enter that standard at the time each publication is being set. This practice may act as a very useful safeguard against command errors and minimize resetting.

DELIBERATE USE OF THE INSTALLATION STANDARD: If no Initial Specifications (width, font, size, lead) are entered at the beginning of a text tape, the entire galley will be set to the Installation Standard. This is a useful method of setting galleys of straight text matter where no changes in specifications occur.

PERMANENTLY CHANGING INTERWORD SPACING

The Interword Spacing (Condition 5, page 177) may also be changed along with, or independently of, the Installation Standard—and it will remain the standard for Interword Spacing until changed by another ⟨CS command or until the Computer Program is reloaded (at which time the standard for Interword Spacing shown under Condition 5 will be restored).

A sample command entering a new Installation Standard *along with* a change in Interword Spacing might be as follows:

⟨ES12,1,9,11⟩⟨CS5,10,22⟩⟨ET

SECTION 10

CLEANING AND MAINTENANCE

The typesetter requires minimal attention by the operator to keep it in the best running condition and to ensure that high quality of type is maintained. Your Singer Field Engineer will perform periodic maintenance adjustments and checks on the internal mechanisms. However, the operator should observe the instructions detailed below.

FONT DRUM COMPARTMENT

Keep the font drum compartment free of dust, paper particles and other foreign matter. The centrifugal force of the spinning font wheel can pick up bits of material and deposit them on the font surfaces and the Xenon lamp and cause broken characters or other imperfections in the type.

Use compressed air to blow dust off the font drum and the Xenon lamp. A small hand vacuum is useful for thoroughly cleaning the compartment from time to time.

FILM TRANSPORT COMPARTMENT

The film transport compartment can accumulate a great deal of paper dust because of the action of the cutting knife. If deposited on the fiber optic bundle lens, the dust can cause broken characters and other imperfections in the type. In addition, excess dust can interfere with the emulsion on the photo paper or film and with the action of the cutting knife.

Clean the film transport compartment each time a new box of photo paper or film is loaded using a small hand vacuum. Clean the lenses with compressed air. Also, clean the film advance rollers with a very light application of a cleaning fluid on a soft cloth.

CUTTING KNIFE

The knife blade used to cut the photo paper or film should be changed when the cut edges on the paper start to become rough and jagged, since the rough edges can interfere with the smooth movement of the paper into the receiving cassette. Your Singer Field Engineer will change the knife for you.

RECEIVING CASSETTE

The receiving cassette requires no maintenance and no lubrication. However, if the photo paper or film should become torn off inside the cassette, it can be taken apart with a screwdriver to remove the torn piece.

PAPER TAPE READER

Dust from the paper tape may accumulate around the light sensitive cells which can result in a failure to read codes correctly. Clean the paper tape reader periodically by brushing with a soft brush or blowing with compressed air.

COOLING BLOWER FILTER

A filter for the cooling blower is located behind the left front door of the machine, above the computer panel (Figure 23).

The filter can be taken apart and should be cleaned once a week using a stiff brush or vacuum cleaner. DO NOT wash the filter in water or other liquid.

OVERHEATING NOTE: If it appears that codes on a tape are being misread, especially if not always the same character is affected over several runs of the same take, check the cooling blower filter. More often than not this problem is due to overheating caused by a DIRTY FILTER. If misreading continues, call your Singer Field Engineer.

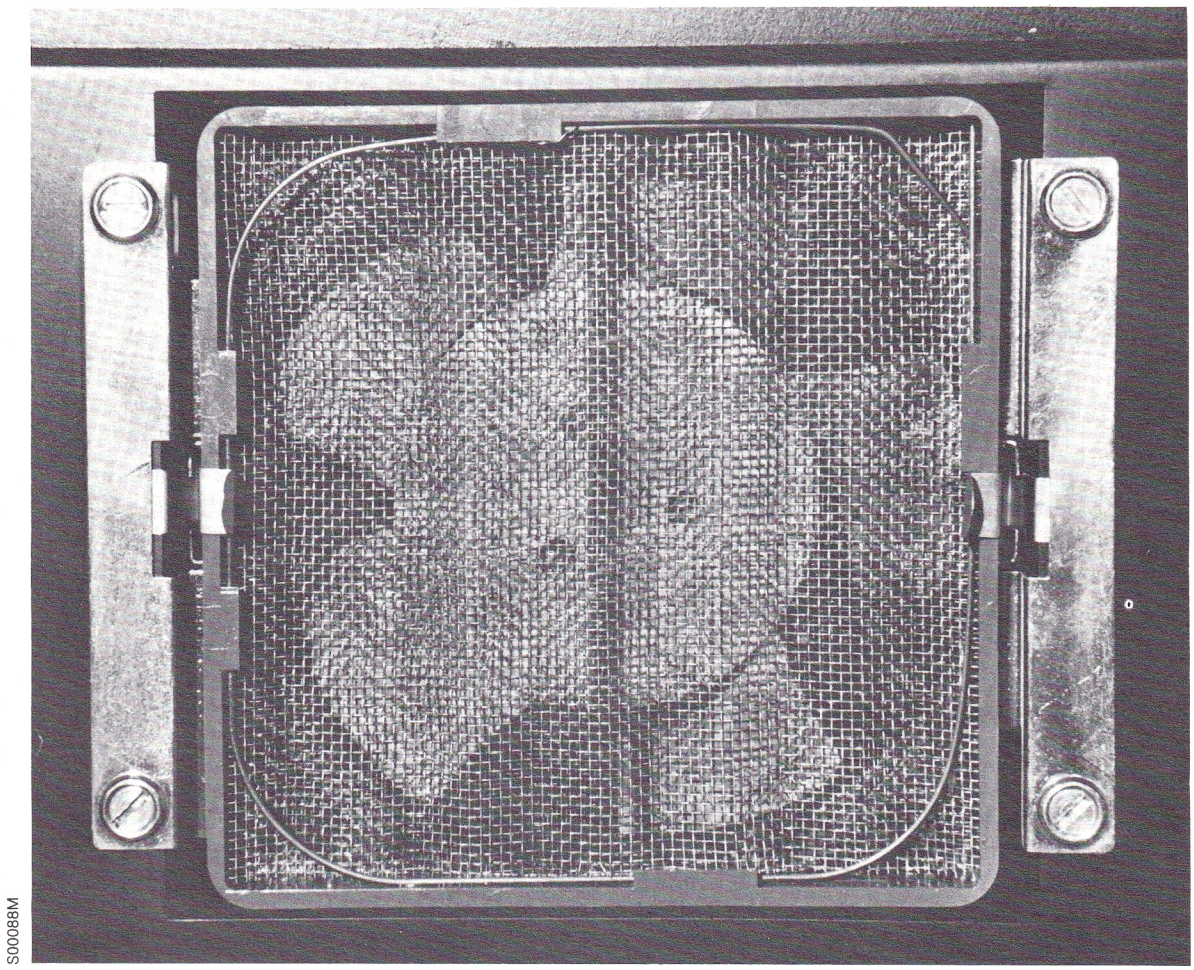


Figure 23. Cooling Blower Filter.

FONT SEGMENTS

The font segments should always be cleaned before mounting them on the font drum. However, the best recommendation for keeping the font segments free from fingerprints, scratches and dirt is preventive maintenance.

Use extreme care not to get fingerprints on either the timing marks or the characters themselves. Avoid touching any part of the film. Handle the fonts

carefully and always keep them in a protected and covered area when not in use.

Take special care with aluminum font segments not to bend or break the portions of the film which are not backed by the aluminum segment base.

The use of any liquid film cleaner on the fonts is *not* recommended because damage may result. However, the following items have been found useful in keeping the fonts clean.

- Kodak Cotton Gloves. Wear these when handling fonts to prevent fingerprints.
- Dust-Off. This is a dust remover aerosol can which can be used to blow dust from the fonts. Manufactured by Falcon Safety Products, Inc., Mountainside, New Jersey 07092.
- Omit Lint and Dust Remover. This is a dust remover aerosol can which can be used to blow dust from the fonts. This remover is especially useful on aluminum font segments. Manufactured by Century Laboratories, Division of Century Chemical Corporation, Chicago, Illinois 60645.
- Scotch Dusting Fabric, No. 550, manufactured by 3M Corporation. This fabric is obtainable in hardware or grocery stores, is non-static and lint free. It will remove fingerprints but not water marks. If used to remove fingerprints, be sure to use it lightly.
- Staticmaster 500, Model 3C500. This is a polonium radioactive anti-static brush manufactured by Nuclear Products Company, El Monte, California. Use the brush to remove dust and static either before or after mounting the font segment on the font wheel.

APPENDIX D

THE FORMAT STORAGE COMMAND

The Format Storage command is used for altering the capacities of both the Format Table and the Permanent Dictionary.

The Photomix phototypesetter, Series 8400, basic 8K model incorporates a 1,900 character storage area which may be used for Format and/or Permanent Dictionary storage. The core of the computer may be expanded in 8K increments, (to a maximum of 32K), adding approximately 8,000 characters of storage with each increment. The upper limit of the ⟨FS command as described below — ⟨FS1900⟩ — reflects the capabilities of an 8K system. If the user has an 8400 system with more than 8K of core, documentation supplied with the software program or from the Singer Sales Representative will tell what the upper numeric limit is for the ⟨FS command in that system.

Following is a complete description of the Format Storage command, its use, and its affect on the Permanent Dictionary:

FORMAT STORAGE

SUPERSHIFT
F
S
number of characters to
be assigned to Format Storage
UNSUPERSHIFT

The ⟨FS command enables the user to specify the respective sizes of the Format Table and Permanent Dictionary, in an area shared by both. A maximum of 1900 characters is available for use with the command. A value greater than 1900 will be ignored.

The value expressed in the ⟨FS command will be assigned to Format Storage, with the balance of the 1900 available characters being automatically assigned to the Permanent Dictionary. Word roots may then be stored in the Permanent Dictionary within its new limits.

The following allocations are supplied by the program tape supplied from the factory:

Format Table: 900 characters
Permanent Dictionary: 1000 characters.

The program loads a dictionary of 650 characters. The additional 350 characters may be added by the user, or this program-supplied dictionary may be canceled with the ⟨XD8400⟩ command and replaced with a user-created Permanent Dictionary.

Examples of the use of the ⟨FS command follow.

EXAMPLE A: ⟨FS0⟩ (all Permanent Dictionary).
Format storage is set at zero, allowing 1900 characters to be stored in the Permanent Dictionary.

EXAMPLE B: ⟨FS1200⟩.*
Format storage is set at 1200, allowing 700 characters to be stored in the Permanent Dictionary.

EXAMPLE C: ⟨FS1900⟩* (all Format storage).
Format storage is set at the maximum — 1900 — and the Permanent Dictionary is deleted.

***Note the affects on the Permanent Dictionary, as described below.**

The Permanent Dictionary is protected until either a ⟨XD8400⟩ command or a ⟨FSxxxx⟩ command is issued. The ⟨XD8400⟩ command will totally clear the Permanent Dictionary, as stated in Section 8. Issuance of a ⟨FS command could destroy part or all of the Permanent Dictionary if the dictionary area is encroached upon.

The following procedures are therefore recommended for the protection of the Permanent Dictionary:

(1) A ⟨FS command with a value *greater* than the last ⟨FS value issued may destroy part or all of the dictionary — especially if the Permanent Dictionary area has been filled to capacity. In such a case, the ⟨FSxxxx⟩ command should be immediately followed by the ⟨XD8400⟩ command, clearing the Permanent Dictionary. A new dictionary may then be loaded to conform to the new limit (1900, less the value in the ⟨FS command).

EXAMPLE: If this is the first ⟨FS command issued since the program was loaded, the parameters of the Format Table and the Permanent Dictionary are as stated above — ⟨FS900⟩. If the program-supplied dictionary has not been canceled, it contains 650 characters. At this time, a ⟨FS1250⟩ command, or one with a greater value, would destroy part of this dictionary. The dictionary should then be cleared with the ⟨XD8400⟩ command and a new, smaller one loaded.

(2) A ⟨FS command with a value *less* than the last ⟨FS value issued will result in expansion of the Permanent Dictionary area, and contraction of the Format Table. The dictionary is still intact and may immediately be expanded up to the new limit (1900, less the value in the ⟨FS command).

(3) If no new ⟨FS command is issued, the dictionary may be expanded up to its current limit — 1000 characters if the dictionary area supplied by the program has not been previously altered. An error message will be output to indicate dictionary overflow if the limit is exceeded.

(4) If formats being loaded will not fit within existing Format Table parameters, as stated by the ⟨FS command, an error message will be generated to indicate Format Table overflow.

Since the ⟨FS command is so powerful, it is strongly suggested that strict surveillance over its use be maintained within an installation. Format/dictionary parameters which are desirable for one job may be quite unsatisfactory for another, especially when Stored Formats or Permanent Dictionary loaded for an application exceed their respective limits, and overflow.

A reference log should be maintained which documents the current status of the format/dictionary area: respective limits allocated to each, the date when the last change was made, by whom, and what dictionary is loaded. It would be helpful to include an up-to-date print-out of word roots in the dictionary, together with the appropriate dictionary load tape. If the ⟨FS value is changed often, several different sizes and types of dictionaries may be documented in the log, available for loading when the dictionary size needs to be varied, or when the vocabulary requirements of a particular job do not lend themselves to the currently stored dictionary.

NOTE: The Temporary Dictionary is unaffected by the ⟨FS *command.*

TERMINATION NOTE: This is a permanent command, and will be altered only by a new ⟨FS *command with a different value, or by reloading the software program.*

APPENDIX E

THE LOOPING AND STRINGING OF STORED FORMATS

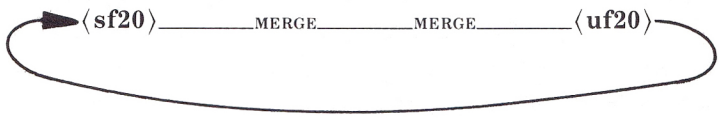
A stored format may be terminated in one of three ways:

1. **With ⟨EF** — This may be called a *self-terminating format*. It performs a certain task once and then returns all control to the text stream.
2. **With ⟨UFxx⟩ (xx =** SAME NAME**)** — This is known as a *looping format*, which continues to address itself automatically, performing the same task over and over again.
3. **With ⟨UFxx⟩ (xx =** DIFFERENT NAME**)** — This is known as a *stringing format*, which addresses the next format in line automatically, following a logical progression in the execution of a larger overall layout.

LOOPING FORMATS

Two types of looping formats will be discussed below: 1) Continuously looping formats, and 2) Conditionally looping formats. The baseline rules represent stored commands or text of any kind.

CONTINUOUSLY LOOPING FORMATS



These are formats which continuously execute the same layout over and over, where nothing is set at the beginning of the format until text is merged from the text stream.

Examples of this type of looping format would be ones which set numbered paragraphs or tabular lines.

Example: Format Which Loops Continuously to Set Numbered Paragraphs

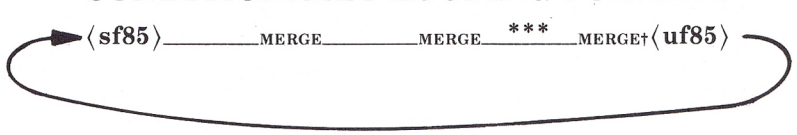
⟨sf38⟩⟨cf2⟩ MERGE PERIOD EN-SPACE ⟨ix⟨cf1⟩ MERGE ⟨ep⟨el2⟩⟨uf38⟩

⟨uf38⟩ 1. This format loops continuously, and MERGE
2. sets the same type of paragraph repeatedly, MERGE
3. without manual intervention from the operator. MERGE

The period is stored in the format, and indenting and extra leading are provided for automatically, so all the operator keyboards is this:

⟨uf38⟩number MERGE paragraph MERGE number MERGE paragraph MERGE, etc.

CONDITIONALLY LOOPING FORMATS



***Last functions of format.

These are formats which also loop continuously, but are used in situations where the operator must be able to either control the looping, or count the number of times a looping format is executed. In such cases, placing an additional MERGE (†above) immediately preceding the Use Format command gives the operator such control.

The looping of the format, then, is conditional on whether or not a matching MERGE is found in the text stream: if the additional MERGE is keyboarded, the format will loop; if it is not, the format will continue to wait for the MERGE to appear in the text stream, unless instructions are encountered either to End(use-of-the)Format or Use(another)Format.

Example: Controlling the Looping of a Format Setting Bulleted Paragraphs

(A Book font is on Font 1, and a News Display font is on Font 4. . . . "π" indicates "Pi Access".)

⟨sf109⟩⟨cf4⟩ π. ⟨ix⟨cf1⟩ MERGE ⟨ep⟨el2⟩ MERGE ⟨uf109⟩

⟨uf109⟩ •THE 9TH SYMPHONY—the first choral symphony composed is a resplendent setting of Schiller's *"Ode to Joy,"* a celebration of the brotherhood of man. MERGE MERGE

•MISSA SOLEMNIS—a synthesis of symphony, opera, church music—ending with a prayer for inner and outer peace. MERGE*

These are just a few examples of the excitement you will discover in this monumental series.

MERGE** •THE 16 QUARTETS—reflecting Beethoven's evolution from the elegant 18th century style to prophetic genius of the future. MERGE*

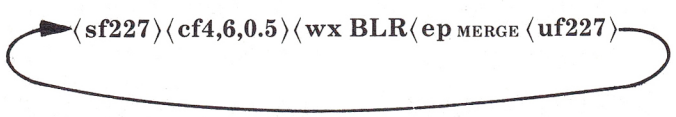
The operator keyboards: ⟨uf109⟩ bulleted paragraph MERGE MERGE bulleted paragraph MERGE non-bulleted paragraph MERGE, etc.

Following the initial addressing of the format, at the end of every paragraph the operator keyboards one Merge to complete the functions of the format, and an additional Merge if another bulleted paragraph is to be set (see the end of the first paragraph, above).

If another bulleted paragraph does not immediately follow, the operator keyboards one Merge (*) to terminate the paragraph. Then the intervening text is keyboarded as desired, and the next Merge (**) entered will cause the waiting format to loop.

Example: Counting the Executions (Loops) of a Format Setting Baseline Rules

This is a general purpose format which may be used to set *rules of all thicknesses to fit all layouts.* It is definitely recommended as a permanent addition to the user's format library. A News Display font is on position 4. "BLR" indicates the baseline en dash.

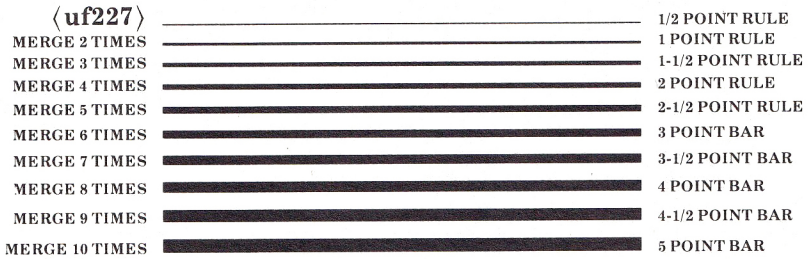


A ½ point rule is set in 6 point type on ½ point of lead. Each Merge following ⟨uf227⟩ causes the format to loop and set another rule layered over the last, creating a rule which is ½ point thicker.

Six point type is recommended over larger point sizes for setting rules, because it not only sets a neater rule (the definition of the individual segments cannot be

seen), but 6 point segments fit more evenly into most measures (see Note below). It is important that the leading be stated specifically as "0.5" in order to be stored. If ".5" is stated, the current line will be leaded ½ point, and automatic leading will follow. The End-of-Paragraph command terminates the line so that this format may be used within a tabular column, without leaving that column.

This rule may be expanded in ½ point increments to form a rule, bar or solid box of any thickness and dimension. Extra Leading of 6 points is executed between each rule in the samples which follow:



The above format may also be used to set any solid shape. For instance, to set a solid box which is 6 picas square: 1) restrict the setting area to 6 picas with either indents or a tabular column; and 2) execute the format 144 times (6 picas × 12 points = 72 points × 2 executions of the format per point = 144 executions). Addressing the format uses it once; follow this with 143 Merges:

An irregularly shaped solid may also be set by varying indents from each margin.

NOTE: It may be necessary to overflash (No Escape) one baseline rule segment at the left margin in cases where an even number of segments will not fit in the stated measure or tabular column. Please see Appendix H. See also NO ESCAPEMENT, *page 109, and footnote, page 142.*

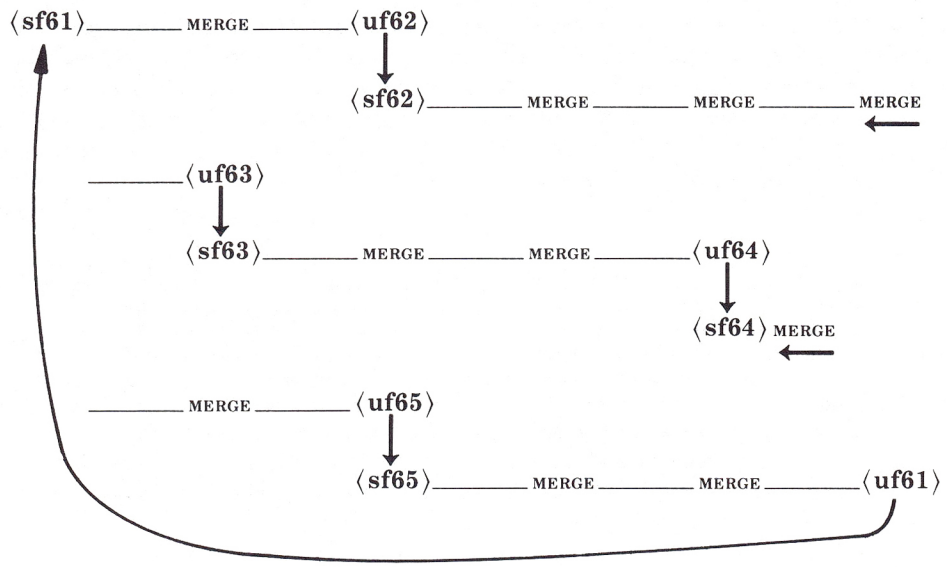
STRINGING FORMATS

Stringing formats are ones which address one another in sequence, in situations where each individual format is only part of the overall layout which is set with all of the formats interacting with each other.

As in the case of looping formats there may also be 1) Continuously stringing formats, and 2) Conditionally stringing formats, in all combinations. Some of these will be discussed below. The baseline rules represent stored commands or text of any kind.

Appendix E

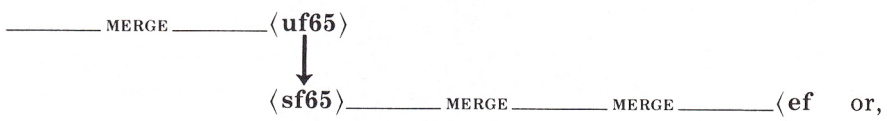
CONTINUOUSLY STRINGING FORMATS



Demonstrated above is a situation where all of the stringing formats form one large loop, somewhat like dancers in a circle.

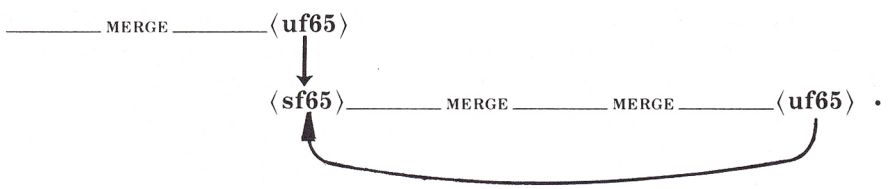
Alternate ways of ending this string of formats would be:

1. for Format 65 to be terminated with ⟨EF, ending the string in a "dead end", whereupon all control is returned to the text stream . . .



or,

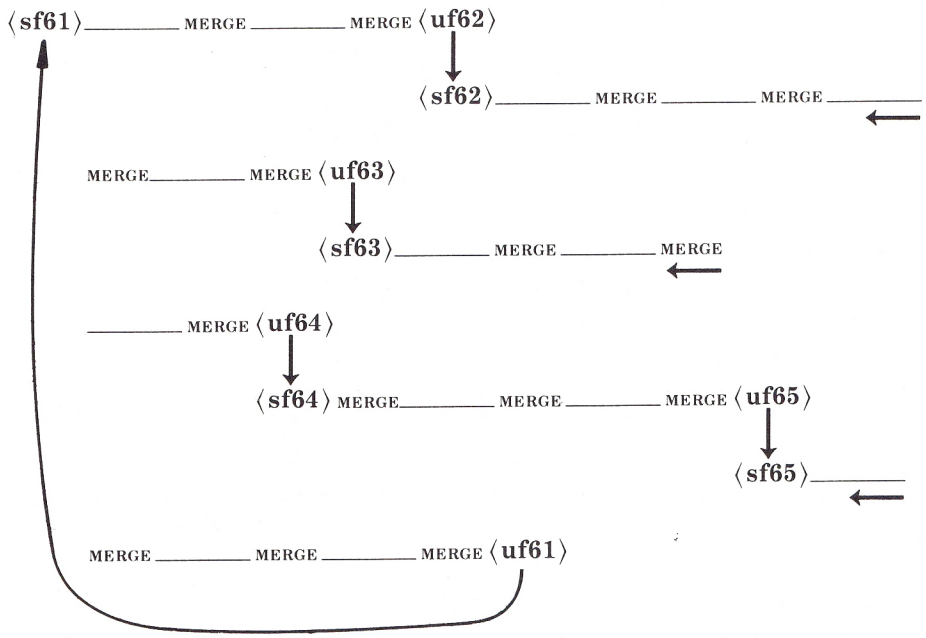
2. to have Format 65 use itself, terminating the string of formats in a loop . . .



Continuously stringing formats are useful where the functions of the next format in line *always logically follow* those of the preceding format.

CONDITIONALLY STRINGING FORMATS

Modifying the above stringing layout,



In a manner similar to conditionally looping formats, the Merge preceding the calling of the next format in a string prevents the format from going any further until that additional Merge is keyboarded in the text stream.

This technique is useful when the functions of the next format in line usually, but *not always follow* those of the preceding format. For example, when variations in the layout need to be performed before the next format is called, the next to last Merge causes the logical conclusion of the current format to be performed, and the succeeding format will not be called until the last Merge is keyboarded in the text stream.

A further example would be the setting of a book which has numerous levels of headings. The commands to set each level of heading would be stored in a format, Merging with the text stream for the heading. Also included in each format might be the specifications for a paragraph to follow, with a Merge to the text stream for that paragraph. If the technique of conditionally stringing the formats were employed, the next format would be called only when that conditional Merge was keyboarded—matching the one immediately preceding the Use Format command in the stored format. At any point the operator could return to the beginning of the string, or jump to another position in the string, simply by merging the appropriate number of times or addressing the desired format in the text stream.

The possibilities for combining all of the stored format layouts described above are endless. Every new job has its own requirements, and it is necessary for the user to know specifically how he wants to express those requirements in type. Once this is known he may proceed in establishing an overall layout, and in determining which formats are going to perform which specific part of that layout. Only then can stored formats be written which interact efficiently and use the least number of codes, with the least duplication of functions from one stored format to the next. Smaller formats which deal with specific typesetting problems in a job are normally more efficient and easier to organize than longer formats which are expected to accomplish a number of tasks.

APPENDIX F

INDENTING AND THE TAB MODE

All of the indents may be used in the Tab Mode, some with more practicality than others. However, certain considerations must be made in the respective order of the Tab-Setting and Indenting commands.

If the Indenting command *precedes* the Tab-Setting command, in some cases the effects are quite different from those resulting when the Indenting command *follows* the Tab-Setting command. Indents may also be used within individual tabular columns following the ⟨MA (Mark Tab Line) command.

The ways in which the Indenting commands may be used with the Tabular commands are covered below. Under a sub-heading for each Indention command, the special considerations for each of the four Tab-Setting commands are covered.

It is always recommended that stored formats be used whenever any indents are used in the tab mode. This is not necessary, but is good practice because some combinations of commands may be complex.

INDENT TAKE

With TAB SET

A. Indent Take Command Used to Adjust the Overall Measure:

If the Indent Take command appears either *before or after* the Tab Set command, and *preceding* the ⟨MA command, the results will be identical. For instance,

either ⟨CC40⟩ . . . ⟨IT10,10⟩⟨TS5,8,14⟩⟨MA . . . ,

or ⟨CC40⟩ . . . ⟨TS5,8,14⟩⟨IT10,10⟩⟨MA . . .

will adjust the left and right margins of the overall measure and dictate the space in which the Tab Set command may operate. Therefore, if the overall measure is 40 picas, and the left and right margins are each indented 10 picas, there remain 20 picas in which to set the table.

The adjusted left margin is the beginning of the first column, and the adjusted right margin is the right margin of the last column. As far as the Tab Set command is concerned, *the adjusted left margin is zero* — in the above example, 10 picas to the right of the actual left margin — the point from which the right margins of all columns are measured. In this example, the highest (pica) value in the Tab Set command may not exceed 20, the space remaining from the adjusted left margin to the adjusted right margin.

When the margins of the overall measure need to be indented to set a table, it is generally recommended that this be accomplished with blank columns expressed in the Tab Set command and tabbed over when the line is being set. However, when tables are inserted into an endless text stream to be set in more than one master column on a page by a stored format, the Tab Set command will operate repeatedly following any new indent specifications, as long as the Tab

Set command is repeated following any change or cancelation of indent (or every time the table appears if the location of the change in indent is not known), and providing the table will fit within the measure remaining after the indents have been subtracted.

NOTE: When Indent Take is used with Tab Set, the highest value in the Tab Set command may not exceed the overall measure MINUS *the values in the Indent Take command.*

SPECIAL NOTE: When Indent Take is used to indent the entire measure within which the tab line will operate, the indents adjusting the overall measure for the tab-setting command may be temporarily suspended following the ⟨QT⟨IT0,0⟩ *combination of commands to enable the user to set across the full measure. A new* ⟨MA *command will recognize the previous tab-setting command, together with the Indent Take margin adjustments which were in effect at the time the tab-setting command was introduced, unless new Indent Take values have been stated prior to the* ⟨MA *command (which will cause the tab line to be recomputed in accordance with the new margin adjustments).*

Indent Take may be used with one set of values to indent the overall measure, and following the ⟨MA *command a second Indent Take command may be introduced with new values within an individual tabular column. Both sets of values will operate simultaneously. The indent(s) within the tabular column will be automatically canceled by any quadding command used in tabbing to a new column. The indent(s) over the entire measure will be subject to the conditions described in the above paragraph.*

B. Use of Indent Take Command in Individual Columns:

If the Indent Take command *follows both* the Tab Set command and the ⟨MA command, the indent will take effect for the column in which it is entered. For example,

⟨CC30⟩ . . . ⟨TS10,16,21,25⟩⟨MA⟨IT2,2⟩ . . .

causes the first column, which would normally be 10 picas wide, to be indented 2 picas from the left margin, and 2 from the right, leaving 6 picas in which to set the text. If one of the other columns had been tabbed into, and *then* the indent were stated, the indent would apply to that column.

TERMINATION: Tabbing into a new column — with ⟨QL, ⟨QR, ⟨QC *or* ⟨JU *— will automatically cancel Indent Take. The* ⟨EP *(End-of-Paragraph) command, however, will allow the Indent Take to continue without tabbing out of the column.*

Indent Take is therefore useful when the ⟨EP command is used within an indented column to terminate lines without tabbing out of the column. When the next column is tabbed into with a quadding command, the indent will be canceled.

Where only a small portion of text needs to be indented within a column, Indent Paragraph may be more appropriate than Indent Take, since it will be canceled by the ⟨EP command, allowing one to continue setting in the same column.

NOTE: Any indention value(s) entered within a column may not exceed the setting area allotted to that column by the Tab Set command.

Indent Take may be used either to indent the overall measure, or for indentions within tabular columns. Please refer to the SPECIAL NOTE under example A, above.

INDENT TAKE
With TAB NUMBER

A. Indent Take Command Used to Adjust the Overall Measure:

If the Indent Take command appears either *before or after* the Tab Number command, and *preceding* the ⟨MA command, the results will be identical. For instance,

either ⟨CC40⟩ . . . ⟨IT5,5⟩⟨TN6⟩⟨MA . . . ,
or ⟨CC40⟩ . . . ⟨TN6⟩⟨IT5,5⟩⟨MA . . .

will cause the number of columns in the Tab Number command to be divided into the measure *remaining* after the margins have been adjusted by the Indent Take command.

In this example, the measure remaining after the margins have been adjusted will be 30 picas. There will be 6 columns of 5 picas each.

When tables are inserted into an endless text stream to be set in more than one master column on a page by a stored format, the Tab Number command will operate following any new indent specifications, as long as the Tab Number command is repeated following any change or cancelation of indent (or every time the table appears if the location of the change in indent is not known), and providing the table will fit within the measure remaining after the indents have been subtracted.

NOTE: When the margins of the overall measure are being indented it is a good idea to compute the value of each column to make sure there will be enough room for the text in the columns. The sizes of the columns can change considerably when indents are in effect.

Indent Take may be used either to indent the overall measure, or for indentions within tabular columns. Please see the SPECIAL NOTE under "Indent Take with Tab Set," above.

B. Use of Indent Take Command in Individual Columns:

If the Indent Take command *follows both* the Tab Number command and the ⟨MA command, the indent will take effect for the column in which it is entered. For example,

⟨CC40⟩ . . . ⟨TN6⟩⟨MA⟨IT.9,.9⟩ . . .

causes the first column to be indented 9 points from each margin. The considerations required for use of Indent Take in this manner are the same as with Tab Set, above.

TERMINATION: Tabbing into a new column — with ⟨QL, ⟨QR, ⟨QC *or* ⟨JU *— will automatically cancel Indent Take. The* ⟨EP *(End-of-Paragraph) command, however, will allow the Indent Take to continue without tabbing out of the column.*

NOTE: When indenting within Tab Number columns it is highly recommended that the actual pica value of each column be computed to make sure there will be room for text while the indents are in effect.

Indent Take may be used either to indent the overall measure, or for indentions within tabular columns. Please see the SPECIAL NOTE under "Indent Take With Tab Set," above.

Appendix F

INDENT TAKE
With TAB PROPORTION

A. Indent Take Command Used to Adjust the Overall Measure:

If the Indent Take command appears either *before or after* the Tab Proportion command, and *preceding* the ⟨MA command, the results will be identical. For instance,

either, ⟨CC40⟩ . . . ⟨IT5,5⟩⟨TP3,1,2,4⟩⟨MA . . . ,
or ⟨CC40⟩ . . . ⟨TP3,1,2,4⟩⟨IT5,5⟩⟨MA . . .

will cause the proportional columns as stated in the Tab Proportion command to be automatically computed within the measure *remaining* after the margins have been adjusted by the Indent Take command.

In this example the measure remaining after the margins have been adjusted will be 30 picas. There will be four columns with respective values of 3, 1, 2 and 4 picas.

When tables are inserted into an endless text stream to be set in more than one master column on a page by a stored format, the Tab Proportion command will operate following any new indent specifications, as long as the Tab Proportion command is repeated following any change or cancelation of indent (or every time the table appears if the location of the change in indent is not known), and providing the table will fit within the measure remaining after the indents have been subtracted.

NOTE: When the margins of the overall measure are being indented it is a good idea to compute the value of each column (following the instructions on page 54) to make sure there will be enough room for the text in the columns. The sizes of the columns can change considerably when indents are in effect.

Indent Take may be used either to indent the overall measure, or for indentions within tabular columns. Please see the SPECIAL NOTE under "Indent Take With Tab Set," above.

B. Use of Indent Take Command in Individual Columns:

If the Indent Take command *follows both* the Tab Proportion command and the ⟨MA command, the indent will take effect for the column in which it is entered. For example,

⟨CC40⟩ . . . ⟨TP3,1,2,4⟩⟨MA⟨QL⟨QL⟨QL⟨IT2,2⟩ . . .

will cause the fourth column to be indented 2 picas from each margin. The considerations for use of Indent Take in this manner are the same as with Tab Set, above.

TERMINATION: Tabbing into a new column — with ⟨QL, ⟨QR, ⟨QC *or* ⟨JU *— will automatically cancel Indent Take. The* ⟨EP *(End-of-Paragraph) command, however, will allow the Indent Take to continue without tabbing out of the column.*

NOTE: When indenting within Tab Proportion columns it is highly recommended that the actual pica value of each column be computed (see page 54) to make sure there will be room for text while the indents are in effect.

Indent Take may be used either to indent the overall measure, or for indentions within tabular columns. Please see the SPECIAL NOTE under "Indent Take With Tab Set," above.

INDENT TAKE
With TAB TEXT

A. Indent Take Command Used to Adjust the Overall Measure:

Since Tab Text commands are always entered within a justifying or quadded line, if Indent Take is in effect at the time the line containing the Tab Text commands is being set, the margins adjusted by the indents will apply to the tab-setting line, and the tabular columns will remain for use following the ⟨MA command as they would normally. Indent Take may also be introduced at any point following the tab-setting line, with the same results. The tabular columns will be automatically recomputed. For instance,

either ⟨IT10⟩⟨TT column one EM⟨TT column two EM⟨TT column three ⟨QL⟨MA . . . ,
or ⟨TT column one EM⟨TT column two EM⟨TT column three ⟨QL⟨IT10⟩⟨MA . . .

will place the tabular columns relative to the text within the indents. Other considerations for the use of Indent Take in this manner are the same as with Tab Set above. However, it is not recommended that indents be frequently specified following a line containing Tab Text commands, as confusion may result.

If an indent, such as the one in the example above, is changed later in the text stream, then the tab-setting line *must be repeated.*

NOTE: Common sense and experience will dictate the amount one may indent the overall measure within which Tab Text columns are to be established, since the operator normally does not know precisely how much space each column will require when using this tab-setting command.

Any new Tab Text command in a new line will cancel all previous tab setting commands. One must not cancel the indents and continue to tab, however, without setting a new tab-setting line. If this procedure is not followed, the results will be unpredictable, depending on a variety of conditions which may be in effect.

Indent Take may be used either to indent the overall measure, or for indentions within tabular columns. Please see the SPECIAL NOTE under "Indent Take With Tab Set," above.

B. Use of Indent Take Command in Individual Columns:

If the Indent Take command *follows both* the tab-setting line and the ⟨MA command, the indent will take effect for the column in which it is entered. The considerations required for use of Indent Take in this manner are the same as with Tab Set, above.

NOTE: Indent Take may be used either to indent the overall measure, or for indentions within tabular columns. Please see the SPECIAL NOTE under "Indent Take With Tab Set," above.

INDENT FIRST LINE and INDENT HANG
With ALL TAB-SETTING COMMANDS

Use of Indent First Line and Indent Hang Within Tabular Columns:

Although these "pattern" indents are inappropriate for indenting the overall measure for tabbing, they may be used within tabular columns and will behave normally, with the following exceptions:

1. Both Indent First Line and Indent Hang must be specified after tabbing into each column within which they are to be used. The ⟨EP command will terminate lines and paragraphs, and will activate the indent(s) without tabbing out of the column.
2. Tabbing into a new column — with ⟨QL, ⟨QR, ⟨QC or ⟨JU — will automatically cancel both indents permanently. If they are required in another column, they must be so specified after tabbing into that column.

INDENT PARAGRAPH
With ALL TAB-SETTING COMMANDS

A. Indent Paragraph Command Used to Adjust the Overall Measure:

If the Indent Paragraph command appears either *before or after* any tab-setting command, and *preceding* the ⟨MA command, the considerations and results are the same as for the Indent Take command (see Indent Take with the four tab-setting commands, above).

SPECIAL NOTE: When Indent Paragraph is used to indent the entire measure within which the tab line will operate, the ⟨EP *command may be used freely within the individual tabular columns. The* ⟨EP *command will not cancel the Indent Paragraph command adjusting the overall measure for the tab-setting command, although the indent will be suspended following the* ⟨QT⟨EP *combination of commands to enable the user to set across the full measure. A new* ⟨MA *command will recognize the previous tab-setting command (if a new one has not been stated since the original indents were specified), together with the accompanying Indent Paragraph margin adjustments, unless new Indent Paragraph values have been stated prior to the* ⟨MA *command (which will cause the tab line to be recomputed in accordance with the new margin adjustments).*

Indent Paragraph may be used with one set of values to indent the overall measure, and following the ⟨MA *command a second Indent Paragraph command may be introduced with new values within an individual tabular column. Both sets of values will operate simultaneously. The indent(s) within the tabular column will be canceled by the* ⟨EP *command within the same column, or by any quadding command used in tabbing to a new column. The indent(s) over the entire measure will be subject to the conditions described in the above paragraph.*

B. Use of Indent Paragraph Command in Individual Columns:

If the Indent Paragraph command *follows both* the tab-setting command and the ⟨MA command, the indent will take effect for the column in wich it is entered. The effect is the same as for Indent Take within a tabular column, except

for the fact that Indent Paragraph will be canceled by the End-of-Paragraph command within the same column, as well as with quadding commands used in tabbing to the next column.

NOTE: Indention values entered within a column may not exceed the setting area allotted to that column by the tab-setting command.

Indent Paragraph may be used either to indent the overall measure , or for indentions within tabular columns. Please refer to the SPECIAL NOTE under method A, above.

INDENT TEXT
With TAB SET

NOTE: Indent Text MAY NOT be used to indent the overall measure and then be followed by Tab Set, since Tab Set requires absolute pica values and Indent Text always equals a variable value based on actual text set on the line.

Indent Text may, however, be used *within* tabular columns, following the Tab Set and ⟨MA commands.

TERMINATION: Indent Text within a tabular column will be canceled by the ⟨EP *command within the same column, as well as with quadding commands used in tabbing to the next column.*

INDENT TEXT With TAB NUMBER, TAB PROPORTION AND TAB TEXT

A. Indent Text Command Used to Adjust the Overall Measure:

If the Indent Text command *precedes* the Tab Number or Tab Proportion command, the columns will automatically be computed for the measure remaining after the indents have been subtracted.

In the case of Tab Text, the Indent Text command adjusts the measure used for setting the line in which the Tab Text commands are entered, and thus figures in the placement of the tabular columns.

NOTE: The Indent Text command must always precede the tab-setting command. If the indent is to be changed, the tab-setting command must be repeated. Indent Text will be ignored when introduced between a tab-setting command and a ⟨MA *command.*

SPECIAL NOTE: When Indent Text is used for an indent from the left margin to specify that portion of the entire measure within which the tab line (specified only by Tab Number, Tab Proportion or Tab Text) will operate, the ⟨EP *command may be used freely within the individual tabular columns. The* ⟨EP *command will not cancel the Indent Text command adjusting the overall measure for the tab-setting command, although the indent will be suspended following the* ⟨QT⟨EP *combination of commands to enable the user to set across the full measure. A new* ⟨MA *command will recognize the previous tab-setting command (if a new one has not been stated since the original indents were specified), together with the accompanying Indent Text margin adjustment, unless a new Indent Text has been stated, in which case the tab-setting line must be repeated.*

Indent Text may be used with one value to indent the overall measure from the left margin, and following the ⟨MA *command a second Indent Text command may be introduced within an individual tabular column. Both indents will operate simultaneously. The indent within the tabular column will be canceled by the* ⟨EP *command within the same column, or by any quadding command used in tabbing to a new column. The indent over the entire measure will be subject to the conditions described in the above paragraph.*

B. Use of Indent Text Command in Individual Columns:

The considerations for the use of Indent Text within tabular columns are identical to those for Indent Paragraph. See *Use of Indent Paragraph Command in Individual Columns*, above.

NOTE: Indent Text may be used simultaneously to indent the overall measure and within tabular columns. See the SPECIAL NOTE under method A, above.

INDENT LEFT MARGIN and INDENT RIGHT MARGIN SKEW LEFT and SKEW RIGHT

Used Within Tabular Columns

NOTE: These indention commands are, by their very nature, inappropriate and invalid for indenting the overall measure within which a tab-setting command is to operate. However, they may be used effectively WITHIN *tabular columns:*

The marginal indents and skew indents are "timed" indention commands in that they operate only for the number of lines stated in the command, and then cancel themselves. These indents will operate normally within tabular columns, following a ⟨MA command or after tabbing to a given column.

The indent(s) must be stated after entering a column and will be canceled by any quadding command used in tabbing to a new column.

All four of these indents may be used simultaneously within a tabular column, just as they may in the non-tab mode, by "overlaying" them with the Delay Lines command in a stored format. For instance,

⟨IL6,0,15,7⟩⟨IR6,0,15,7⟩⟨SL-30,15⟩⟨SR-30,15⟩⟨DL30⟩

in which the Indent Left Margin, Indent Right Margin, Skew Left and Skew Right commands are stating simultaneous patterns, and the Delay Lines command says, "All right, go ahead and set them all at once."

NOTE: Any indention value(s) entered within a column may not exceed the setting area allotted to that column by the tab-setting command.

APPENDIX H

TERMINATORS FOR LINES CONTAINING THE WITH LEADERS OR WITH CHARACTER COMMANDS

Background: When a line is set with leaders or with an inserted character, the program converts the relative unit value of the character to basic machine units and inserts as many of the specified characters as may be divided into the available machine units remaining after any text has been placed in the line. Quite often, this will result in a small deficit of machine units where an additional impression of the character will not fit.

In order to control the placement of this deficit in the line, to allow leaders and rules to be set to the full extent of the measure, and to control vertical alignment of leaders or other inserted characters on multiple lines, the following rules should hereafter be observed. (Leaders are used as the example character, but any character may be inserted in the line.)

(1) Where text is to be set flush left on the measure, with leaders filling the balance of the line to the right margin, the line should be terminated with QUAD LEFT, or END PARAGRAPH if an indent is being controlled. The deficit will be placed between the text and the leaders, and the last leader character will be set at the absolute right margin. If no text appears on the line prior to the ⟨WL command, the deficit will be placed at the left margin. On multiple lines, the leaders will align vertically if all lines are terminated with the same quad.

(2) Where the text is to be set flush right on the measure, with leaders filling the balance of the line from the left margin, the line should be terminated with QUAD RIGHT. The deficit will be placed between the leaders and the text, and the first leader character will be set at the absolute left margin. If no text appears on the line following the ⟨WL command, the deficit will be placed at the right margin. On multiple lines, the leaders will align vertically if all lines are terminated with the same quad.

(3) Where text is to be set surrounding leaders, i.e., text . . . . . text, the line should be terminated with QUAD CENTER. The leaders will be force-aligned vertically. One-half of the deficit will be placed between the flush left text and the first leader character; the other half of the deficit will be placed between the last leader character and the flush right text. On multiple lines, the leaders will align vertically if all lines are terminated with the same quad.

This feature, in addition to giving the ability to set leaders to the absolute extents of the measure, also allows baseline rules to be butted with vertical rules; for example, in setting the ruled corners of a box.

APPENDIX I

FLOATING ACCENTS

All software programs for the Photomix phototypesetter, Series 8400, provide for the use of floating accents. Software programs exist for many languages other than English. The main difference between these foreign language programs and the U.S. Domestic programs is that the hyphenation logic is unique for each specific language. Special keyboards are designed operate with these programs.

If much type is being set in a language other than English, it behoves the user of the phototypesetter to use software—and keyboards, if possible—designed for that language. Keyboarding will be easier, and hyphenation will be correct, barring exceptions to the hyphenation logic, where the exception dictionaries may be used.

If, however, occasional jobs are set in a language other than the one for which the software program being used was designed, it is necessary only to use the proper fonts for that language. Labels may be placed over existing keycaps on the keyboard to show new character accesses, or a keyboard chart may be used by the operator. Extensive use of the exception Dictionaries, together with Discretionary Hyphenation within the text stream, will be required when proper software for the language in use is not loaded in the computer.

HOW ARE FLOATING ACCENTS USED?

Floating accents are accents which are centered either above or below an alphabet character. In most languages the accents appear *above* the characters, as in this sample from a French font:

ÉTÈ
où OÙ
nôtre NÔTRE

> À l'origine, *depuis* exprimait un rapport de temps seulement, mais «. . . le rapport de temps et le rapport de lieu ont, dans la langue, une constante affinité: its se lient si facilement dans notre pensée qu'ils deviennent très souvent interchangeables: d'*ici* à demain, *dans* 20 ans, le jour *où* vous viendrez. Il est donc fort naturel que *depuis*, qui s'emploie essentiellement en parlant du temps, ait pu servir aussi à marquer un rapport de lieu: ce que l'on considère comme se déroulant à partir d'un certain *moment*, notre esprit se le représente comme situé à une certaine distance d'un endroit initial.»

Appendix I

In some languages, as in the Latvian sample which follows, floating accents appear *below* some characters (notice the accent under the lowercase "l" on the second line):

> Ieeja pret labprātīgiem ziedo-
> jumiem. pēc oficiālās daļas sekos
> saviesīgs vakars. Dalības maksa:
> $3.00, studientiem $1.50.

The character to be accented is keyboarded first, followed by the appropriate accent. Floating accents are specially positioned on the font, and have *zero width value*. Whereas most characters are left and base aligned, floating accents are *centered* on the left alignment point of the other characters, and they are positioned vertically to go over (or under) either lowercase or uppercase characters.

When a character is followed by an accent with zero width value, the character is flashed and one-half its width value is escaped, the accent is flashed, and the second half of the character's width value is escaped. The accent, then, is perfectly centered over (or under) the character.

INDEX

Page numbers which appear in **boldface** type refer to those pages where the listed item receives the most detailed discussion, or demonstration of use.

A

accents, floating, **215-216**
access code, pi, 40
acrylic font segments, 16
activating tabs—see Mark Beginning Tab
ad figures, three-quarter, **26**
add thin code, TTS, **40**
address codes, font position, **39**,21-22
adjustment control knob, flash density, **23**
alignment, character, **37**
Allow Hyphenation
  description, **49**
  in installation standard, 177-178
  special note, **49**
  termination, **49**
  used in example, **78**,79
Allow Letterspacing
  description, **49**
  in installation standard, 177-178
  special note, **49**
  termination, **49**
  used in example, **77**
alphabet codes, **28**
alphanumeric characters, 112
  counting in format storage, 112
altering width tapes, 37
alternate Point Mark, Point Maximum used as, 127-128
aluminum font segments, 16
assembly, font drum, 1,**2,3**
assembly, optic bundle, **4**
auto hyphen—see Discretionary Hyphenation
Automatic Leading, 46,71
  activation—see Kill Change Leading
  computation of, by typesetter, 47
  examples, 72
  increment—see Increment Automatic Leading
  special note, 46,74
  used in example, 128
automatic stop of typesetting on Empty, **11**
  on Full, **11**
avoid splitting tables between pages in pagination, how to, 165

B

bar, spacer, film, **17**
bars, setting, **197**
baseline rule, **26,109**
  controlling thickness of, **196-197**
  setting, **196-197**
  special note, 142,144
  used in example, 83,86,87,88,109,123, 124,125,142,143,144,**197**
baseplate assembly, transport, **2**
beginning tab line—see Mark Beginning Tab
bell code, **39**,40,41
bin, tape receiving, 5
blank line spaces, executing in pagination, 163
book fonts, **33**
book symbol codes, **31**
bootstrap, **14**
box, film/photo paper supply, 17,18
boxes, setting solid, 197
buffer, input, 9,10,11
bundle, fiber optic, 1,**2**
burred receiving slot, **19**

C

calculating the length of an underscore, **84**
camera-ready pages, 151
Cancel Hyphenation
  description, **50**
  termination, **50**
  used in example, **78**
Cancel Indent Hang, **101**
  description, **60**
  used in example, **99**
Cancel Letterspacing
  description, **49**
  termination, **49**
  used in example, **77**,93,171
Cancel No Flash, **110**
  description, **67**
  used in example, 92,99,117,118,119, 120,142
Cancel Ragged Margin
  description, **51**
  used in example, **79**
cancel tabs, 94—also see Quit Tab Line
  description, **56**
  used in example, 92,94,99,117,118, 119,120
canceling skew command, 171
capacity of format table, **112**
capital letter, initial, 163
captions, placement in page, 169
carrier, lens, **2**,9,10

cassette—see receiving cassette
cells, reader photo-electric, 21,22
centered copy—see Quad Center, see Ragged Center
Change Column Width
command examples, 72
description, **43**
in installation standard, 177
special note, 73
used in example, **73**,74,75,77,79,81, 82,85,90,92,93,95,96,97,98,99, 100,101,102,103,104,105,106, 108,114,120,123,124,128,142, 148,151,162,169,171
Change Face
command examples, 72
description, **46**
in installation standard, 177
used in example, **73**,74,75,82,83,86, 87,88,99,100,101,108,114,115,117, 118,119,123,124,125,142,143,144, 169
Change Interword Spacing, 178—also see interword spacing
description, **48**
in installation standard, 177-178
special note, 49
standard values, 48
termination, 49
used in example, **77**,**178**
Change Leading
command examples, 72
description, **46**
indicating half-points, **46**
in installation standard, 177
kill—see Kill Change Leading
termination, **46**
used in example, **74**,97,124,143
with Return Mark, 57
with value of zero, 46
used in example, 77
Change Point Size
command examples, 72
description, **46**
in installation standard, 177
used in example, **73-74**,76,81,94,108, 123,125,133,142,144,152,153,154, 155,156,157,162,164,170,171
with Return Mark, 57
Change Set Width, 127,151
command example, 66
description, **66**
in installation standard, 177-178
specifying quarter point sizes, 66
termination, **66**
used in example, **107-108**,123,128, 133,172
changing fonts within a take, 73
changing measure within a take, example, 73
changing type size within a take, 73
channel numbering
paper tape, **26**
Singer, **26**
TTS, **26**
chapter pagination, 151
character
alignment, **37**
codes in numerical sequence, **27**
counts, computation of, **209**
delete—see rubout
unit values, 21,22
character count computation, **209**
worksheet, 210a
characters
alphanumeric, 112
counting in format storage, 112
inserting in line—see With Character
numeric, counting in format storage, 112
pi, **32**
check imprint example, 122-126
check stub, payroll, example, 126-140
circuit, electrical, required, **13**
circuit, power requirements, **13**
cleaning & maintenance, **179-181**
clear exception dictionary, **175**
clear format table, 112,**113**
used in example, 123,128,148,151,162
Clear Permanent Dictionary, 175
description, **68**
clearing tabs—see Cancel Tabs, see Quit Tab Line
closing code, command, **43**
code
bell, **39**,40,41
chart, font width, **40**
command closing, **43**
command opening, **43**
conversions within editing terminal, 26
flag, **43**
pi access, 40
precedence, **43**
rubout, **34**
sequence, font width tape, **39**,**40**
shift, **34**
space bar, **34**
TTS add thin, **40**
unshift, **34**
coded tape, TTS, **1**,**25**

codes
alphabet, **28**
character, in numerical sequence, **27**
font position address, 21-22,**39**
font width—see font width codes
of data, 112
symbol
book, **31**
news display, **30**
wire service, **29**
unit value, order of, **40**
visual, punching, 187-188
coding, visual, 14
column width, 71—also see Change Column Width
columns of text, multiple, Indent Take used to set, 169
columns, setting on force justified line, **93**

command
  closing code, **43**
  errors, 71
  language, **43**
  opening code, **43**
  structures, **43**
    examples, **44-45**
commands
  commas separating numeric values in, **43**
  format, **111**
  single key, **35**,43
  single specifications issued in, 72
  specification, in series, examples, 72
  stored format, **111**
  variable values in, 71
commas
  escaping, **34**
  separating numeric values in commands, **43**
compartment, paper/film holding, **17**
complex word roots, 174-176
components, hardware, 1
computation of character counts, **209**
computer, 1,13,14
  control switches, 5,**8**
  error messages—see error messages
  key, **13**
  panel, **13,14**
  software program, 15
    loading, 14
    loss of, 13
    tape, 14
  start-up procedure, **13**
configurations, type font, **26**
continue typesetting after Stop EOL, 10
control knob, flash density adjustment, **23**
control panel, 1,**5**,**7**,13
  switches & indicators, paper/film, **10**
  switches
    computer, 5,**8**
    paper/film, 5
    typesetter, 5,**9**
controlling degree of skew with stored format, 170-172
conversions, code, within editing terminal, 26
cooling blower filter
  cleaning, 180
  removal, 180
cord, power, **13**
counting lines—see Delay Lines
counts, character, computation of, **209**
cover, font drum, 16
cover plate, paper transport, 17
  removal of, **18**
creating & maintaining permanent dictionary, **175-176**
CRT editing terminal, Singer 9400, 26
current, electrical, **13**
cutter knob, 19
cutting exposed photo paper/film, **20**
cutting knife replacement, 179

D

daily power-down procedure, **15**
daily start-up procedure, **15**
data, codes of, 112
decimals
  counting in format storage, 112
  escaping, **34**
dedicated line, **133**
degree of skew, controlling with stored format, 170-172
Delay Lines, **111**,113
  cancelation on text tape, **65**,163
    used in example, 164
  description, **65**
  effect of extra & reverse leading on, 163
  special note, 65
  termination, **65**
  used in example, 148,149,152,153, 154,155,156,157,162,163,169,171
  used with skew command, 171
Delete Word from Permanent Dictionary, used in example, **175**
density
  flash adjustment, **23**
    control knob, 5,**23**
  optimum image, **23**
depth, standard, of magazine page, establishing, 169
description of point sizes, **1**
determining factors, number of pages stored in format, 151
dictionaries—also see Permanent Dictionary, see Temporary Dictionary
  storing words in, 174-176,194
dictionary, permanent, 15,194
  clear—see Clear Permanent Dictionary
  creating & maintaining, **175-176**
  enter—see Enter Permanent Dictionary
  loading, 14,15,**21**
  print-out, 15
    obtaining, 175
dictionary, enter temporary—see Enter Temporary Dictionary
Discretionary Hyphenation
  description, **50**
  effect on hyphenation logic, **50**,173
  single key, **50**
  special note, **50**
  used in example, **78**
display, news, fonts, **26**
  symbol codes, **30**
dot leaders—see With Leaders
drum, font, 14,15,16
  cover, 16
dummy layout, creating, 146-148
dummy text tape, 147

E

edge, tape guide, **25**,**26**

editing terminal
code conversions within, 26
Singer 9400 CRT, 26
effect of discretionary hyphens on hyphenation logic, 173
effect, special, increasing set width for, 107
electrical
circuit required, **13**
codes, National Fire Protection, **13**
current, **13**
outlet required, **13**
electronic perforator, 8251 model VI, 26
eliminating widows, 151
em space, **34,37**,183-185
used in example, 82,83,92,101,143, 152,164,165
with Point Mark, **56**
empty
automatic stop of typesetting, **11**
indicator, 8,10,**11**
switch, **8**,11,14
en dash, **26**,84
en space, **34,37**,183-185
used in example, 85,86,108,115,117, 118,119,120,125
End Format, **111**,113
description, **64**
special note, 64
used in example, 116,118,119,120, 128,129,130,131,132,133,134, 135,149,163,171
End-of-Paragraph, **106**
description, **63**
indent termination, 63,206-208
paragraph
ending note, 100
initialization, 63
terminator in pagination, 163
single key, **63**
tabbing note, **63**
terminating lines containing With Leaders or With Character commands, **213**
used in example, 98,99,100,101,108, 163,164,165
used in tabular columns, **201-208**
End-of-Take, 10,22,23,69,72,**107**
description, **65**
reverting to installation standard, **65**,177
used in example, 73,77,83,88,90,92, 95,96,103,104,105,106,120,121, 126,135,137,140,145,149,158, 165,170,172
ending paragraphs in ragged mode, **79**
ending tapes—see End-of-Take
enhancers, image, **2**
Enter Dictionary, **176**
Enter Permanent Dictionary
description, **68**
sample command, 68
used in example, **174-175**
Enter Standard
description, **177**
Enter Standard, continued
used in example, **178**
Enter Temporary Dictionary, **176**
description, **67-68**
sample command, 68
termination, **68**
entering words into dictionaries, 174-176
environment, typesetter, **13**
EOL, Stop
continue typesetting after, 10
switch, 9,**10**,23
error messages, 10
description, **69**,177
meaning of codes, 69
errors, command, 71,177
escapement, inhibiting—see No Escapement
escaping decimals & commas, **34**
escaping numerics, **34**
establishing standard depth of magazine page, 169
examples of command structures, **44-45**
exception dictionaries—see Permanent Dictionary, see Temporary Dictionary
executing blank line spaces in pagination, 163
Extra Leading
description, **48**
effect on Delay Lines, 163
maximum amount of, 48
paginating with, 163
used in example, **76**,79,82,86,87,88, 93,97,99,100,101,108,117,118, 119,120,128,130,133,142,152, 153,154,155,156,157,158,162, 164,165,169,170

F

face, change—see Change Face
face, type—see Change Face, see typeface
facing pages, 158
setting, 151
factors determining number of pages stored in format, 151
feed holes, **25**
feed—see tape feed
feeding paper, 10
fiber optic bundle, 1,**2**
figure space, **34**
special note, 81
used in example, 86,87,92,164
figures, superior, **33**
figures, three-quarter ad, **26**
film, 10,11—also see photo paper
indicator, 10,**11**,15
loading, **17**
positives, 1
spacer bar, **17**
supply box, 17
placement in holding compartment, **18**
transport
compartment, cleaning, 179
mechanism, 1,**5**

film/photo paper
control switches & indicators, **10**
exposed, marking & cutting, **20**
holding compartment, **17**
switch, 5
toggle switch, 11,14,15
transport mechanism, **6**
fitting type to shapes, example, 146-149
fixed spaces, **34**,37,**183**
kerning, **34**,108
special note, 88
values, 183-185
flag code, **43**
flash density adjustment, **23**
control knob, 5,**23**
flashing, inhibiting—see No Flash
floating accents, **215-216**
flush left—see Ragged Right, see Quad Left
flush right—see Ragged Left, see Quad Right
folios, setting, 151,160-161
font—also see typeface
font configurations, **26**
font drum, 14,15,16
assembly, 1,**2**,**3**
compartment, cleaning, 179
cover, 16
font position address codes, **39**,21-22
font segments, 2,14
acrylic, 16
aluminum, 16
cleaning, **180-181**
mounting, 15,**16**
thumbscrews, **16**
font width codes, **38**
chart, **40**
font width tapes, 10,37-41
code sequence, **39-40**
loading, 14,15,**21**
making modified, **40-41**
making new, **40**
font widths, 2,15
fonts
book, **33**
changing within a take, 73
computation of character counts, **209**
foreign language, **26**
news display, **26**
special-use, **26**
wire service, **26**
force justified line, setting columns on, **93**
force justify—see Justify Line
force justifying a line, 81
foreign language fonts, **26**
form, racing, example, 141-145
format—see also stored formats
and text stream, merging between, **113**
capacity, 193
commands, **111**
counting executions of, **196**
deleting single formats, 113
end—see End Format
ending note, 63
format, continued
factors determining no of pages stored in, 151
leaving, **116**
looping, **113-114**,**195-197**
conditionally, **195-197**
continuously, **195**
controlled, **195-197**
example, 115,144
overlay, **112-113**
size, 112
counting alphanumeric characters in, 112
counting command values in, 112
counting decimals in, 112
counting numeric characters in, 112
counting periods in, 112
statements, 15
capacity for, 193
loading, 14,15,**22**
purposes for storing, **111**
storage area, format/dictionary, 1,**174**,**193-194**
store—see Store Format
stored, controlling degree of skew with, 170-172
stringing, **113-114**,**197-199**
example, 117,128,143,170
table, 22
capacity of, **112**
clear—see Clear Format Table
overload, 10
tapes, preparation of, **22**
use—see Use Format
Format Storage command, 45,**193**
effects on permanent dictionary, 194
termination note, 194
format table capacity, 193
formats
intermixable, example, 126-140
outline, example, 116-122
pagination, various types of, 166
stored, revising, 151
formatting, page, 150-170
magazine, example, 168-170
fractions, methods for setting, **189-191**
full, automatic stop of typesetting, **11**
full indicator, 10,**11**
functions, single key, **33**
fuses, **5**

G

galilean telescope, **2**
galley, pagination, 158
ground
receptacle, **13**
wire, **13**
main, **13**
guide edge, tape, **25**,**26**

H

half-points, indicating in commands, **46**
halving lens, 1
hanging indent cancellation—see Cancel Indent Hang
hanging indents—see Indent Hang
hardware components, 1
heads, placement in page, 169
heads, running, setting, 151,160-161
holding compartment, paper/film, **17**
  placement of paper/film box, **18**
holes, feed, **25**—also see tape feed
hyphen, auto—see Discretionary Hyphenation
hyphenation, 49
hyphenation, allow—see Allow Hyphenation
hyphenation, cancel—see Cancel Hyphenation
hyphenation, discretionary—see Discretionary Hyphenation
hyphenation logic
  determination of hyphenation points, 173
  effect of discretionary hyphens on, 173
hyphenation of numeric values, 173
hyphenation rules, 173
hyphens, discretionary, effect on hyphenation logic, 173

I

identification, tape, **25**
illustrations, placement in page, 169
image density, optimum, **23**
image enhancers, **2**
imprint, check, example, 122-126
increasing set width for special effect, 107
Increment Automatic Leading
  description, **47**
  special note, 76
  termination, **47**
  used in example, **75**,99,151,152,162, 164
Indent First Line
  activation, **59**
  description, **59**
  termination, **59**
  used in example, **98**,108,163,164,165
  used with tab-setting commands, 206
Indent Hang, 122
  activation, **59**
  cancellation—see Cancel Indent Hang
  description, **59**
  termination, **59**
  used in example, **98-99**
  used with tab-setting commands, 206
Indent Left Margin
  description, **60**
  runarounds, 61
  sample commands, 60-61
  termination, **61**
  use in a format, 58
Indent Left Margin, continued
  used for runaround, **101-102**
  used within tabular columns, 208
Indent Paragraph
  description, **59-60**
  termination, **60**
  used in example, **100**,108
  used with tab-setting commands, 206-207
Indent Right Margin
  description, **61**
  runarounds, 61
  termination, **61**
  used in a format, 58
  used in example, **102-103**,164
  used to set shapes, 102-103
  used within tabular columns, 208
Indent Take, **97**,122
  cancel, used in example, 77,95,97,126
  description, **58**
  sample commands, 58
  special note, 165
  termination, **58**
  used in example, 77,79,95,97,124,148, 149,169
  used to set multiple columns of text, 169
  used with Tab Set, 202
  used with Tab Number, 203
  used with Tab Proportion, 204
  used with Tab Text, 205
indent termination—see End-of-Paragraph, see individual indent commands
Indent Text, 122
  description, **60**
  special note, 60
  termination, **60**
  used in example, **100-101**
  used with Tab Number, Tab Proportion, Tab Text, 207-208
indenting
  note, 80
  used with the tab mode, 201-208
indents, measuring for on layout, 147
indicators
  empty, 8,10,**11**
  film, 10,**11**,15
  full, 10,**11**
  light, power, **5**
  paper, 10,**11**,15
  paper/film, 5
indicators & switches, paper/film control, **10**
initial capital letters, 163
initial specifications
  at the beginning of a take, 72-73
  changing with Tab Number, 89
  changing with Tab Proportion, 90-91
  in series, **71**
  rules for punching, **71**
initialize switch, 8,**9**,10,21,22,23
initializing tab line—see Mark Beginning Tab
input buffer, 9,10,11

input tape specifications, **1,25**
inserting characters in line—see With Character
installation standard, 9,10,15,71—also see error messages
changing the, 177
column width, 43
conditions stored, 177
deliberate use of, 178
point size, 46
specifications stored, **177**
typeface, 46
using more than one, 178
installing font segments, **16**
installing receiving cassette, **19**
installing transport cover, **19**
intermixable formats, example, 126-140
interword spacing—also see Change Interword Spacing
of justified lines, 49
of quadded lines, 49
permanently changing, **178**
standard values, **48**
use of, in justification, **49**

J

job parameters—see Initial Specifications
justification, use of interword spacing in, **49**
justified lines, interword spacing of, 49
Justify Line
description, **52**
leading note, 52
single key, **52**
to cancel indents in tab mode, **201-208**
used in example, **81**,94,103,142,143, 144,149
used in tabular columns, **201-208**
with Cancel Letterspacing, 81
justifying, force, a line, 81
Justoperf 8202, 26

K

Kern Character
description, **67**
special note, 67
used in example, 86,99,**108**,115,124, 125,131,133,164,170,172
kerning fixed spaces, **34**,108
key, computer, **13**
keyboarding errors, 177
Kill Change Leading
description, cf247
special note, **47**
used in example, **76**,152,164
Kill Word
description, **69**
single key, **69**
knob, flash density adjustment control, **23**
knob, cutter, 19

L

lamp, xenon, **2**
language, command, **43**
language fonts, foreign, **26**
layout
creating dummy, 146-148
measuring indents on, 147
variations, pagination, commanded on text tape, 160
leading, 71
automatic, 46
activation of—see Kill Change Leading
extra—see Extra Leading
increment automatic—see Increment Automatic Leading
kill change—see Kill Change Leading
mistake in, special note, 74
motor, **5**
primary—see Change Leading
restating, **46**
reverse—see Reverse Leading
Secondary—see Extra Leading
stored—see Change Leading
switch, **10**,19
zero—see Zero Leading
leaders—see With Leaders
leaving format, note, **116**
left, flush—see Ragged Right, see Quad Left
lens, **2**
carrier, **2**,9,10
halving, 1
travel, **2**
turret, 1,**2**,4
letters, initial capital, 163
letterspacing
allow—see Allow Letterspacing
cancel—see Cancel Letterspacing
with Justify Line Command, 81
lid, paper transport, 17
light, power indicator, **5**
line
dedicated, **13**
overflow, 49
power, **13**
quadded, setting columns on, 91
termination with With Leaders, With Character Commands, 211
lines
counting—see Delay Lines
justified, interword spacing of, 49
quadded, interword spacing of, 49
List Permanent Dictionary, **175**
load tape, permanent dictionary, 15
loading
computer software program, 14
font width tapes, 14,15,**21**
format statements, 14,15,**22**
permanent dictionary, 14,15,**21**
photo paper or film, **17**
single font width tapes, **22**
logic, hyphenation—see hyphenation logic
logical hyphenation, 173

looping formats—see format looping
loss of computer software program, 13

M

magazine page
  establishing standard depth of, 169
  formatting, example, 168-170
main ground wire, **13**
main power on-off toggle switch, **5**
maintaining permanent dictionary, **175-176**
maintenance & cleaning, **179-181**
making a modified font width tape, **40-41**
making a new font width tape, **40**
margin switch, 10
Mark Beginning Tab, 94
  description, **55**
  single key, **55**
  special note, 55
  termination, **55**
  used in example, 82,83,85,86,87,88, 90,92,94,96,99,114,115,117,118, 119,120,124,125,128,129,130,131, 132,133,134,135,137,143,144,152, 153,154,155,156,157,162,163
marking exposed photo paper/film, **20**
marks, timing, 2
matching words with word roots, 174-175
measure—also see Change Column Width, see column width
  changing within a take, example, 73
measuring indents on layout, 147
medium, output, **1**
Merge Copy, **111**,127
  description, **64**
  single key, **64**
  special note, 64
  used in example, 114,115,116,117, 118,119,120,121,123,125,126, 128,129,130,131,132,135,136, 137,138,139,140,142,144,145, 152,157,158,163,164,171
merging, 114—also see Merge Copy
  between format & text stream, **113**
  errors in, 177
  properly, 10
messages, error, 10—also see error messages
methods of pagination, 166
modified font width tape, making a, **40-41**
motor, leading, **5**
mounting of font segments, 15,**16**
multiple columns of text, Indent Take used to set, 169
multiple quadding commands in same line, 75

N

National Fire Protection Electrical Codes, **13**
negative skew left, used in example, **103-104**
negative skew right, **105**,171
new font width tape, making a, **40**
news display
  fonts, **26**
  symbol codes, **30**
No Escapement
  description, **67**
  special note, 67,**110**
  used in example, **109**,142,144
No Flash, **110**
  description, **67**
  termination, **67**
  used in example, 92,99,117,118,119, 142
number of pages stored in format, factors determining, 151
numbering, channel
  paper tape, **26**
  Singer, **26**
  TTS, **26**
numbers, page, setting, 151,160-161
numeric characters, counting in format storage, 112
numeric values
  hyphenation of, 173
  in commands, commas separating, **43**
numerical sequence, character codes in, **27**
numerics, escaping, **34**

O

on-off, main power toggle switch, **5**
opening code, command, **43**
optic bundle assembly, **4**
optimum image density, **23**
"or single key," **43**
order of unit value codes, **40**
outlet, required electrical, **13**
outline formats, 116-122
output medium, **1**
overflow
  line, 49
  pagination, 151
overheating, **180**
overlay, format, **112-113**
overload, format table, 10

P

page formatting, 150-170
  magazine, example, 168-170
page, magazine, establishing standard depth of, 169
page numbers, setting, 151,160-161
pages
  camera-ready, 151
  facing, 158
    setting, 151
  stored in format, factors determining number of, 151
pagination, 150-170
  chapter, 151
  executing blank line spaces, 163
  formats, various types of, 166

pagination, continued
galley, 158
how to avoid splitting tables between pages, 165
layout variations commanded on text tape, 160
methods, 166
overflow, 151
with extra and reverse leading, 163
with tables, 163
panel
computer, **13-14**
control, 1,**5**,**7**,13
power supply, **5**,11,13
paper tape
channel numbering, **26**
perforators, **26**
reader, 1,**2**
cleaning, 179
paper/film
control switches & indicators, **10**
control switches, 5
holding compartment, **17**
indicators, 5
switch, 5
toggle switch, 11,14,15
transport mechanism, **6**
paragraph
ending, note, 100
indention—see Indent First Line
initialization—see End-of-Paragraph
paragraphs
bulleted, 196
numbered, 195
paragraphs, ending in ragged mode, **79**
parameters, job—see initial specifications
payroll check stub, example, 126-140
perforator, electronic, 8251 model VI, 26
perforators, paper tape, **26**
periods
counting in format storage, 112
in dictionary entry, 174a
permanent dictionary, 15,173,194
capacity, 174
clear—see Clear Permanent Dictionary
deleting words, 175
effect of Format Storage command on, 194
ending load tape, 175
enter—see Enter Permanent Dictionary
format/dictionary storage area, **193-194**
load tape, 15,175
loaded by software program, 193
loading, 14,15,**21**
log of words, 176
order of entries, 176
overflow message, 69,175
period in entries, 174a
preventing hyphenation, 176
print-out, 15,175
sample commands, 174-176
permanent dictionary, continued
scanning of, 176
storing word roots, 175,176
tips for creating & maintaining, **175-176**
use of, **173-176**
vocabularies, different, 176
what words to enter, 175
word roots, 174
photo-electric cells, reader, 21,22
photographs, placement in page, 169
photo paper, 1,10,11—also see film, see paper
feeding, 10
indicator, 10,**11**,15
loading, **17**
supply box, 17,**18**
transport
cover plate, 17
lid, 17
mechanism, 1,**5**
photo paper/film, exposed, marking & cutting, **20**
photounit schematic, **5**
pi access code, 40
used in example, 77,109,142,143
pi characters, **32**
used in example, 77,109,142,143
placement of photographs, illustrations, captions & heads in a page, 169
placement of spacer bar, **19**
plate, transport bottom, 17
Point Mark, 114,127—also see Return Mark
alternate, Point Maximum used as, 127-128
description, **56**
non-tab mode, **56**
tab mode, **56**,128,152,153,154,155, 156,157,163
termination, **57**
used in example, **95-96**,97,114,128, 152,153,154,155,156,157,163,169
Point Maximum, 114,127—also see Return Maximum
description, **57**
termination, **57**
used as alternate Point Mark, 127-128
used in example, **96-97**,115,128
point size, 71
point size, change—see Change Point Size
point sizes, description, **1**
points to units, conversion, examples, 183-185
position, font, address codes, 21-22,**39**
positive skew left, **104**
positive skew right, **106**
positives, film, 1
power
circuit requirements, **13**
cord, **13**
indicator light, **5**
line, **13**
main on-off toggle switch, **5**

power, continued
requirements, **13**
supply panel, **5**,11,13
supply switch, 13
supply unit, 1,**5**,**7**
switch, **8**,13,14,15
power-down procedure, daily, **15**
powering up, 13
precedence code, **43**
prefix table, 173
preparation of format tapes, **22**
print-out, permanent dictionary, 15,175
procedures
computer start-up, **13**
daily power-down, **15**
daily start-up, **15**
program, computer software, 15
loading, 14
loss of, 13
program load switch, **8**,14
fail-safe modification, **8**
program, software, 2,8
program tape, computer software, 8,10,14
proportional tabbing—see Tab Proportion
punching visual codes, 187-188
purposes for storing format statements, **111**

Q

Quad Center
description, **51-52**
non-tab mode, **51**
leading note, 52
single key, **51**
tab mode, **52**,85,94,99,123,124,128, 129,130,131,132,133,144,152,153, 154,155,156,157,162,**201-208**
overflow note, 52
terminating lines containing With Leaders or With Character commands, **213**
to cancel indents in tab mode, **201-208**
to end a line, **80**
to end a paragraph, **80-81**
used in example, 75,79,81,85,93,94,99, 108,123,124,128,129,130,131, 132,133,144,152,153,154,155, 156,157,162
Quad from Middle, **107**
description, **65**
line overflow, 66
single key, **65**
used in example, 75,170
Quad Left, 127
description, **51-52**
non-tab mode, **51-52**,**56**
leading note, 52
paragraph ending note, 100
single key, **51**
tab mode, **52**,**56**,82,83,86,90,92,96, 117,119,120,124,125,132,133, 134,135,136,137,138,139,140, 143,144,152,153,154,155,156, 157,162,163,**201-208**
Quad Left, tab mode, continued
overflow note, 52
terminating lines containing With Leaders or With Character commands, **213**
to cancel indents in tab mode, **201-208**
to end a line, **80**
to end a paragraph, **80**
used in example, 73,74,75,76,77,79, **80**,82,83,86,90,92,95,96,97,99, 100,101,108,115,117,118,119, 120,123,124,125,126,128,132, 133,134,135,136,137,138,139, 140,142,143,144,145,152,153, 154,155,156,157,162,163,170
Quad Right
description, **51-52**
non-tab mode, **51**
leading note, 52
single key, **51**
tab mode, **52**,82,83,86,87,88,90,117, 125,143,152,154,155,156,157,162, **201-208**
overflow note, 52
terminating lines containing With Leaders or With Character commands, **213**
to cancel indents in tab mode, **201-208**
to end a line, **80**
used in example, 79,82,83,86,87,88, 90,117,125,143,145,152,154,155, 156,157,162
quadded lines
interword spacing of, 49
setting columns on, 91
quadding commands, multiple in same line, 75
quadding of tab line—see Quit Tab Line
Quit Tab Line, 94—also see Cancel Tabs
description, **55**
special note, 55
used in example, 83,85,86,87,88,92, 94,96,99,115,116,117,118,119, 120,123,124,125,133,136,139, 143,144,152,153,154,155,156, 157,162,163
used to suspend tab mode, 53,54,55

R

racing form, example, 141-145
Ragged Center
description, **51**
restoring hyphenation, 51
special note, **51**
termination, **51**
used in example, **78-79**
Ragged Left
description, **50**
restoring hyphenation, 50
special note, **50**
termination, **50**
used in example, **78-79**
ragged mode, ending paragraphs in, **79**

Ragged Right
description, **50**
restoring hyphenation, 51
special note, **51**
termination, **51**
used in example, **78-79**
reader, paper tape, 1,**2**
reader photo-electric cells, 21,22
receiving bin, tape, 5
receiving cassette, 5,10,17,19
installing, **19,21**
removal, **19**
removing paper & film, 179
receiving slot, burred, **19**
receptacle, ground, **13**
relative unit values, **37**
removal of transport cover plate, **18**
repetitive text, 1
replacement of cassette, **21**
requirements, power, **13**
restating leading, **46**
Return Mark—also see Point Mark
description, **57**
special note, **57**
used in example, **95-96**,97,115,128, 132,135,136,138,139,152,163,169
Return Maximum—also see Point Maximum
description, **58**
used in example, **96-97**,133,136,137, 139,140
Reverse Leading
description, **48**
effect on Delay Lines, 163
maximum amount of, 48
paginating with, 163
used in example, **76-77**,129,130,133, 165
revising stored formats, 151
right, flush—see Quad Right, see Ragged Left
right runaround, 163
right skew, negative, example, 171
roots, word, 174
complex, 174-176
simple, 174-176
matching words with, 174-175
rubout code, **34**
rule, baseline, **26**
— see also baseline rule
rules of hyphenation, 173
runaround—also see Indent Left Margin, see Indent Right Margin
Indent Left Margin used for, 101-102
left, 101-102
right, 163
skewed, 171
three-column, 168-170
running heads, 151,160-161
running text tapes, 14,15,**23**

S

secretary shift, **34**
segments, font, 2,14—also see font segments
installing, **16**
sequence, font width tape code, **39-40**
sequence, character codes in numerical, **27**
series, initial specifications in ,**71**
set width, changing—also see Change Set Width
increasing for special effect, 107
setting columns on force justified line, **93**
setting columns on quadded line, 91
setting facing pages, 151
setting folios, 151,160-161
setting multiple columns of text with Indent Take, 169
setting page numbers, 151,160-161
setting running heads, 151,160-161
setting tabs—see Tab Set, see Tab Number, see Tab Proportion, see Tab Text
shapes, fitting type to, example, 146-149
shapes, Indent Right Margin used to set, 102-103
shift, **34**
shift code, **34**
shift lock, **34**
shift, secretary, **34**
simple word roots, 174-176
Singer 9400 CRT editing terminal, 26
Singer channel numbering, **26**
single commands, specifications issued in, 72
single key commands, **35**,43
single key functions, **33**
"single key, or," **43**
six channel tape, 1,**25**
size, point, change—see Change Point Size
size, type, changing within a take, 73
skew command
canceling, 171
used with Delay Lines, 171
skew, controlling degree of, with stored format, 170-172
Skew Left
description, **61-62**
negative, 62
used in example, **103-104**
positive, 62,**104**
termination, **62**
used in example, **103-104**
used in format, 58
used within tabular columns, 206
skew, negative right, example, 171
Skew Right
cancel, used in example, 171
description, **62**
negative, 62,**105**
positive, 62,**106**
termination, **63**
used in example, **105-106**,171
used in format, 58
used with tabular columns, 206
skewed runaround, 171

software program, 2,8
  computer, 15
    loading, 14
    loss of, 13
    tape, 8,10,14
space bar code, **34**
space, em, **34**—also see em space
space, en, **34**—also see en space
space, figure, **34**—also see figure space
space, thin, **34**—also see thin space
spacer bar, film, **17**
  placement of, **19**
spaces
  blank line, executing in pagination, 163
  fixed, **34**,37
    kerning, **34**,108
    values, 183-185
  word, 37
spacing, interword—also see Change Interword Spacing
  of justified lines, 49
  of quadded lines, 49
  standard values, 48
  use of in justification, **49**
special effect, increasing set width for, 107
special-use fonts, **26**
specification commands in series, examples, 72
specifications
  for input tape, **25**
  initial
    at beginning of a take, 72-73
    in series, **71**
    rules for punching, **71**
  input tape, **1**
  issued in single commands, 72
specifying of type, 146-148
sphering, example, 146-149
splitting tables between pages in pagination, how to avoid, 165
standard depth of magazine page, establishing, 169
standard, installation, 9,10,15—also see error messages, see installation standard
  column width, 43
  point size, 46
  typeface, 46
start switch, **9**,10,11,14,21,22
start-up procedure
  computer, **13**
  daily, **15**
stop—see End-of-Take
stop, automatic
  of typesetting on empty, **11**
  of typesetting on full, **11**
stop EOL
  switch, 9,**10**,23
  to continue typesetting after, 10
stop switch, 8,**9**,10
storage area, format, 1
Store Format 999, **113**
  used in example, 123,128,148,151,162
Store Format, **111**,113
  clearing format table, 64
  description, **63**
  format ending note, 63
  used in example, 114,117,118,119, 123,128,129,130,131,132,133,134, 135,142,143,148,151,162,169
stored formats — see also formats
  capacity for, 193
  commands, **111**
  controlling degree of skew with, 170-172
  revising, 151
  size, **112**
storing format statements, purposes for, **111**
storing words in dictionaries, 174-176
stringing formats—see format stringing
structures, command, examples, **44-45**
suffix table, 173
superior figures, **33**
Supershift, 34,**43**,112
supply box, photo paper/film, 17
supply unit, power, **5**,7
switches
  computer control, 5,**8**
  empty, 14
  initialize, 8,**9**,10,21,22,23
  leading, **10**,19
  margin, 10
  paper/film control, **5**
  power, **8**,13,14,15
  power supply, 13
  program load, **8**,14
    fail-safe modification, **8**
  start, **9**,10,11,14,21,22
  stop, 8,**9**,10,15
  stop EOL, 9,**10**,23
  toggle, main power on-off, **5**
  toggle, paper/film, 11,14,15
  typesetter control, 5,**9**
switches & indicators, paper/film control, **10**
symbol codes
  book, **31**
  news display, **30**
  wire service, **29**

T

tab line
  initialization—see Mark Beginning Tab
  termination—see Quit Tab Line
tab mode suspension—see Quit Tab Line
tab mode termination—see Quit Tab Line
Tab Number
  calculation, example, 53
  description, **53**
  effect of indenting, 53,201-208
  special note, 53
  termination, **53**
  used in example, **84-89**
  used with indents, 201-208

Tab Proportion, 126
calculation of column widths, 54,**89-90**
description, **54**
effect of indenting, 54,201-208
special note, 54
termination, **54**
used in example, **89-91**,128,132
used with indents, 201-208
Tab Set
description, 52
effect of indenting, 53,201-208
special tabbing considerations, 53
termination, 53
used in example, 81-84,96,123,124, 125,143,144,151,162
used with indents, 201-208
Tab Text
description, **54**
effect of indenting, 55,201-208
special note, 55
termination, **54-55**
to set columns
on force justified line, **93**
on quadded line, **91**
used in example, **91-94**,99,117,118, 119,120
used with indents, 201-208
tab-setting commands—see Tab Set, see Tab Number, see Tab Proportion, see Tab Text
table
format, 2
overload, 10
prefix, 173
suffix, 173
width, **39**
tables
how to avoid splitting in pagination, 165
paginating with, 163
tabular — see tab
take
changing fonts within a, 73
changing measure within a, 73
changing type size within a, 73
definition, **72**
initial specifications at beginning of a, 72-73
more than one on text tape, 23
tape
computer software program, 10,14
dummy text, 147
feed
special note, 88,90
used in example, 85,90,117,118, 119,120,128,129,130,131,132, 133,134,135,143
font width
code sequence, **39-40**
making a modified, **40-41**
making a new, **40**
guide edge, **25,26**
identification, **25**
input specifications, **1,25**
tape, continued
paper, channel numbering, **26**
perforators, paper, **26**
permanent dictionary load, 15
reader, **1,2**
receiving bin, 5
six channel, **1,25**
text, more than one take on, **23**
text, pagination layout variations commanded on, 160
TTS coded, **1,25**
width, 9
tapes, ending—see End-of-Take
tapes, font width, 10,37-41
loading, 14,15,**21**
tapes, format, preparation of, **22**
tapes, text, running, 14,15,**23**
tapes, width, altering, 37
telescope, galilean, **2**
temporary dictionary, 173,176
capacity, 176
correcting bad hyphenation in a galley, 176
enter—see Enter Temporary Dictionary
sample command, 176
scanning of, 176
use of, **176**
terminal, editing, Singer 9400 CRT, 26
code conversions within, 26
terminating lines containing With Leaders or With Character commands, **213**
terminating tab line—see Quit Tab Line
text
multiple columns of, Indent Take used to set, 169
repetitive, 1
stream & format, merging between, **113**
tape
dummy, 147
more than one take on, **23**
pagination layout variations commanded on, 160
tapes, running, 14,15,**23**
thin, add, code, TTS, **40**
thin space, **34,37**,183-185
special note, 81
used in example, 77,82,83,86,87,114, 115,124,143,164,165
three-quarter ad figures, **26**
thumbscrews, font segment, **16**
timing marks, 2
toggle switch
main power on-off, **5**
paper/film, 11,14,15
transport
assembly baseplate, **2**
bottom plate, 17
cover plate, paper, 17
installing, **19**
removal of, **18**
lid, paper, 17
mechanism, paper/film, 1,**5,6**

TTS
add thin code, **40**
channel numbering, **26**
coded tape, **1,25**
turret, lens, 1,**2,4**
typeface, 71
type
fitting to shapes, example, 146-149
font configurations, **26**
font segments, 2
size—see Change Point Size
size, changing within a take, 73
specifying of, 146-148
typesetter control switches, 5
typesetting
automatic stop of, on empty, **11**
automatic stop of, on full, **11**
continue after Stop EOL, 10
typesetter control switches, **9**
typesetter environment, **13**

U

underscore, calculating the length of an, **84**
unit value codes, order of, **40**
unit values, character, 21,22
unit values, relative, **37**
units to points, conversion, 183-185
unshift code, **34**
Unsupershift, 34,**43**,112
Use Format, **111**
description, **64**
merging note, 64
termination, **64**
used in example, 115,117,120,121, 126,128,135,136,137,138,139,140, 143,144,149,158,163,170,171
use of interword spacing in justification, **49**

V

value, codes, order of unit, **40**
values
character unit, 21,22
fixed space, 183-185
numeric, hyphenation of, 173
numeric, in commands, commas separating, **43**
relative unit, **37**
variable, counting in format storage, 112
variable, in commands, 71
variable values, counting in format storage, 112
variable values in commands, 71
variations, layout pagination, commanded on text tape, 160
vertical control—see Extra Leading, see Reverse Leading, see Point Mark, see Return Mark, see Point Maximum, see Return Maximum
visual codes, punching, 187-188
visual coding, 14
visuals, 14
voltage requirements, **13**

W

widows, elimination of, 151
width codes, font, **38**
width, column—see Change Column Width, see column width
width, font, code chart, **40**
width, set
changing—see Change Set Width
increasing for special effect, 107
width table, **39**
width tape, 9
code sequence, **39-40**
making a modified, **40-41**
making a new, **40**
width tapes, altering, 37
width tapes, font, 10,37-41
loading, 14,15,**21**
widths, font, 2,15
wire, main ground, **13**
wire service fonts, **26**
wire service symbol codes, **29**
With Character, **107**
description, **66**
line termination, 213
single key, **66**
special note, 66
used in example, 86,123,124,125,142, 143,144
With Leaders, **107**
description, **66**
line termination, 213
single key, **66**
used in example, 82,83,115,164
word delete—see Kill Word
word roots, 174
complex, 174-176
matching words with, 174-175
simple, 174-176
word spaces, **37**
words
deleting from permanent dictionary, 175
matching with word roots, 174-175
storing in dictionaries, 174-176

X

xenon lamp, **2**

Z

Zero Leading
description, **47**
special note, 47
termination, **47**
used in example, **75**,79,86,87,88,92, 117,118,119,152,153,154,155,156, 157,162,163
with Point Mark, **56**

SINGER
GRAPHIC SYSTEMS

PHOTOCOMPOSITION SYSTEMS

COMPLETE • COMPACT • DEPENDABLE

30-2017A